

# NATIONAL FURNACES



Self-  
Cleaning.  
Most  
Healthful  
Heat

Maximum  
Heat  
at  
Lowest  
Fuel Cost

No. 207

## EXCELSIOR STOVE AND MFG. COMPANY

Office & Foundry ~~~ QUINCY, ILL.

Branches OKLAHOMA CITY, OKLA., ST. PAUL, MINN., PARIS TEX.

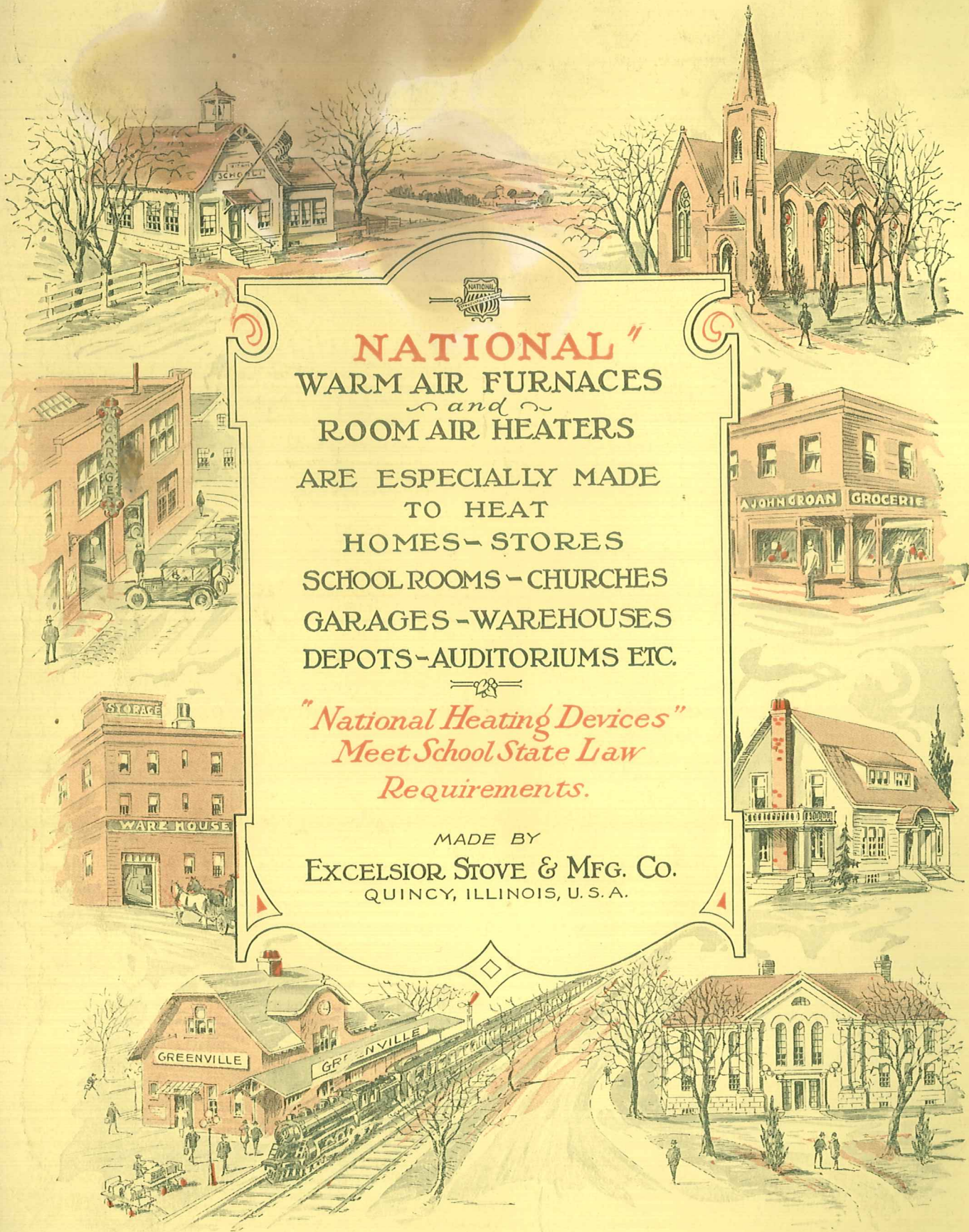




**NATIONAL "**  
WARM AIR FURNACES  
and  
ROOM AIR HEATERS  
ARE ESPECIALLY MADE  
TO HEAT  
HOMES - STORES  
SCHOOL ROOMS - CHURCHES  
GARAGES - WAREHOUSES  
DEPOTS - AUDITORIUMS ETC.

*"National Heating Devices"  
Meet School State Law  
Requirements.*

MADE BY  
**EXCELSIOR STOVE & MFG. CO.**  
QUINCY, ILLINOIS, U. S. A.





# Great Advantages of Warm Air Furnaces Over Steam or Hot Water for Heating Purposes

Doctors and scientific experts all agree that a constant supply of fresh air is absolutely necessary. With a GOOD WARM-AIR FURNACE of AMPLE SIZE and PROPERLY located, a CONSTANT SUPPLY OF PURE FRESH AIR IS FURNISHED AT ALL TIMES and EVERY ROOM and HALL IS WELL HEATED.

The use of direct radiators, steam or hot water, is AGAINST the most PRIMITIVE LAWS OF HEALTH, as there is ABSOLUTELY NO VENTILATION or fresh air supplied in 99 jobs out of 100. In STEAM or HOT WATER HEATED HOUSES the way THEY OBTAIN FRESH AIR is BY OPENING THE WINDOWS a few minutes at a time, a most inconvenient and unsatisfactory method.

State laws require 30 cubic feet of FRESH AIR EVERY MINUTE for EACH PUPIL in all public schools in all Eastern and most of the Middle and Western States. 1800 cubic feet of fresh air per hour per person and containing 65% of water vapor is the healthful state of air we should breathe. Warm air heating provides these conditions.

☒ Disease spreads faster in dry air. Health demands humidity. Outside air—the healthiest of all—is moderately dry—yet the average humidity of 65 per cent. Is it surprising that colds spread so speedily, cheeks dry, hands chapped and throats get sore? Is it any wonder that floors and wood work crack open, furniture falls apart, in the dry atmospherical conditions produced by steam or hot water? Dry heat breaks health—retards growth, dulls the mind, piles up repair expense and increases fuel bills.

A good Furnace is very responsive to the Draft and a large volume of warm air can always be QUICKLY SUPPLIED, insuring a WARM DINING-ROOM, as well as a WARM HOUSE BEFORE BREAKFAST.

The amount of heat required EASILY REGULATED ACCORDING to the WEATHER.—PLENTY OF HEAT in COLD WEATHER, MODERATE amount in MODERATE WEATHER, small amount, just TAKING OFF THE CHILL, in early fall or late spring—continual supply of fresh air to all parts of the dwelling. These results are ABSOLUTELY IMPOSSIBLE where either DIRECT STEAM OR WATER heaters are used.

LARGE or MEDIUM SIZED HOUSES can be PERFECTLY WARMED at ALL TIMES with a warm-air furnace, provided it is amply large, is properly located and has good-sized pipes and registers, with an abundant air supply from the proper direction.

Experience proves a SAVING of 33⅓ per cent to 50 per cent IN FUEL. The cost of installing a warm-air furnace of ample size and power also shows a GREAT SAVING IN COST.

A warm-air furnace seldom requires repairing and if repairs are necessary after a few years' use, the furnace can usually be repaired in two or three hours' time, consequently the heating of a house is seldom interfered with, whereas with STEAM or HOT WATER BOILERS, a BREAK either in the boilers or in the piping, means a cold house and from anywhere from TWO DAYS TO A WEEK WITHOUT ANY HEAT. ☒

☒ Warm-air heating is quiet and noiseless, NO UGLY or UNSIGHTLY RADIATORS in the rooms or halls—NO DIRTY STAINS ON FLOORS, CARPETS or RUGS—NO LEAKY JOINTS—NO NOISE or EXPLOSIONS or CRACKING of SECTIONS—no chance of BREAKAGE OF BOILERS, RADIATORS or PIPES. A GREAT SAVING IN COST OF PLANT. Water pans are furnished, and the evaporation for moisture is regulated according to the wishes of the user.

NATIONAL WARM-AIR HEATING FURNACES AND ROOM AIR HEATERS ARE MADE FROM the best materials possible to procure, by high class mechanics; they are built exceptionally strong and heavy to withstand hard and constant usage; they have the largest heat radiating capacity and are the most economical in the use of fuel of any warm air heating device. Automatically self-cleaning they do not require annual attention, a feature of most importance and convenience. NATIONAL PRODUCTS HEAT LIKE THE SUN; THEY PRODUCE THE MOST HEALTHFUL, CLEAN, RELIABLE, UNIFORM, LABOR-AVING and CARE FREE HEAT OBTAINABLE.

---

## EXCELSIOR STOVE & MANUFACTURING COMPANY

National Stoves, Ranges and Furnaces

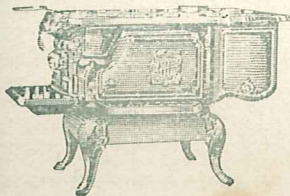
Burn Coke, Coal, Wood, Gas and Oil

Guaranteed High Grade

QUINCY - - - ILLINOIS

OKLAHOMA CITY, OKLA.    PARIS, TEXAS.    ST. PAUL, MINN.



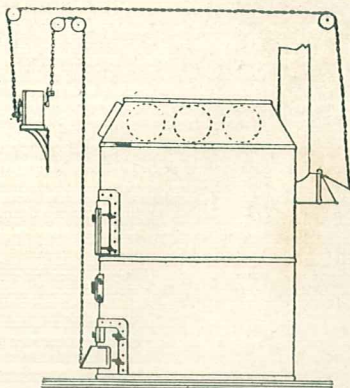


# EXCELSIOR STOVE & MANUFACTURING COMPANY

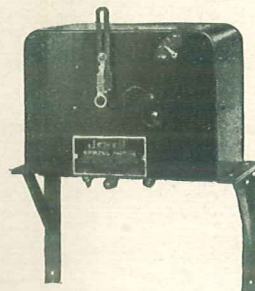
## Jewell Heat Regulator No. J-I-J-G



Thermostat  
As Seen in Living Room



Regulator  
As Attached to a Furnace or School-Room Heater



Motor  
Mounted in Basement

In the Model J-I-J-G we announce a simple, substantial, workable device, which is backed by the skill and experience acquired in thirty years devoted solely to the manufacture of heat-regulating apparatus. This model is produced at the lowest price consistent with quality, workmanship and durability. The thermostat is accurate. The motor is of the gravity type and has ample power and from thirty to fifty per cent more actions at one winding than any other gravity motor. Our regular standard guarantee covers this model.

The thermostat, or mechanical thermometer, is attached to the wall of the living-room with concealed wiring running to the basement. It is handsomely finished and is also equipped with a reliable thermometer.

The Model J-I-J-G is finished with a clock-time attachment, which allows a lower temperature at night, and at any set hour in the morning will automatically turn the indicator to seventy degrees, thereby giving the occupants of the house a warm and comfortable home when they arise. The thermostat is small and inconspicuous, and is an ornament in any room.

### What the Regulator Will Do

It will keep the house at an even temperature, save coal, and prolong the life of a heater by always closing the draft before the fire gains too much headway. It will relieve the mind entirely of the care of draft dampers. The Regulator will demonstrate that no heating plant can be efficient or complete without it. The Regulator will control equally well on hot-water, steam, gas, hot-air and combination heaters.

The Motor is designed to be fastened to the ceiling of the basement. It is small and compact, and presents a very neat appearance, as it is enclosed in a pressed-steel case, handsomely finished in black enamel (baked). After seeing this device, you will at once recognize that it is far superior in mechanical construction to any other regulator on the market. All gears are of brass with steel pinions and run in finely-adjusted bushed brass bearings. The frames are of pressed steel.

The power is furnished by an iron weight, which is of ample size to lift all dampers on the modern types of furnaces, and no special expensive dampers will be necessary. It is equipped with an automatic switch (patented), which leaves the drafts closed when the motor is run down. This is an important feature, as it absolutely eliminates all danger from forgetting to wind the motor and letting it run down with drafts open.

There is also a governor which regulates the speed of the motor and allows the drafts to open and close slowly and steadily, thereby avoiding the clatter and banging of dampers, so objectionable on other makes.

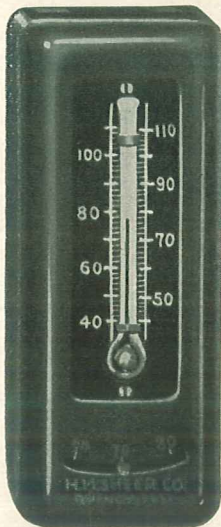
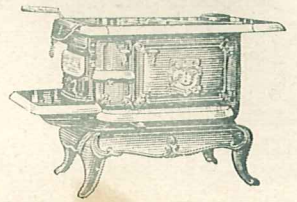
### Price

Number		Weight	Price
J-I-J-G	Regulator, complete with Clock attached.....	20	\$.....
J-O-J-G	Regulator, complete without Clock attached.....	18	.....





# NATIONAL STOVES, RANGES AND FURNACES



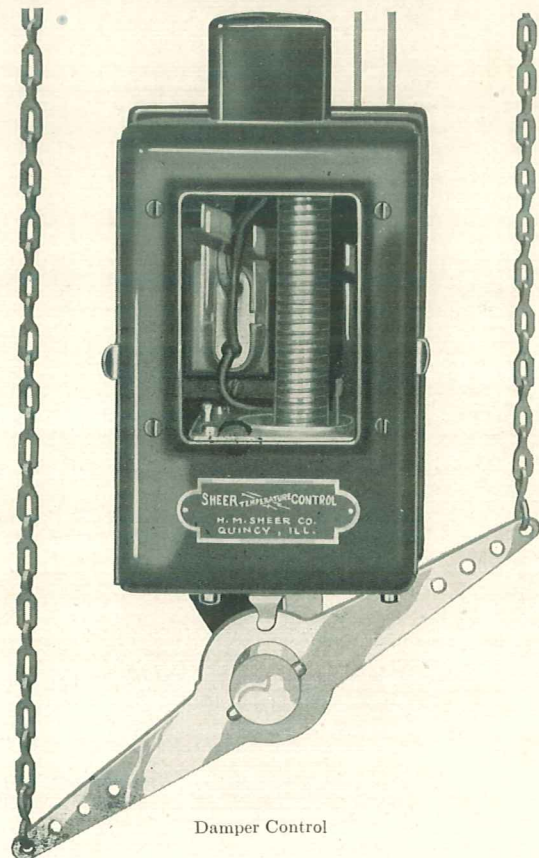
Thermostat

## The Sheer Thermostat

The SHEER THERMOSTAT is especially designed with a snap action in making and breaking current. There is no arcing or pitting because the points snap off, and on contact with sliding motion. It will handle a large amount of current which insures long life of service without trouble. It will operate at less than one degree either way from temperature set. The variation of current will not affect or injure the thermostat. The case is finished in enamel and furnished with hand calibrated thermometer on front. Below is the hand for setting temperature at the desired point. All thermostats are set at the factory at seventy degrees Fahrenheit, as accurate.

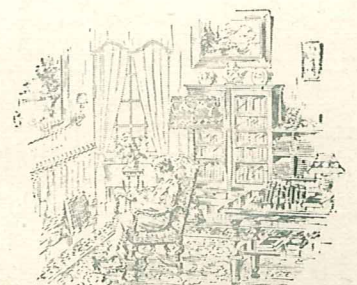
## The Sheer Damper Control

From a view of the damper control, showing the position of the bellows, bulb, lever-arm and the transformer, you can readily see that the unit is fool-proof and the most simple device placed on the market. Under actual test, the bellows have been contracted and expanded for over sixty million cycles without damage, and the resistance wiring is capable of standing a temperature many times as great as the regular operating temperature. The damper control case is finished in black enamel, and the transformer is enclosed in the case. The illustration shown is one-third actual size.



Damper Control

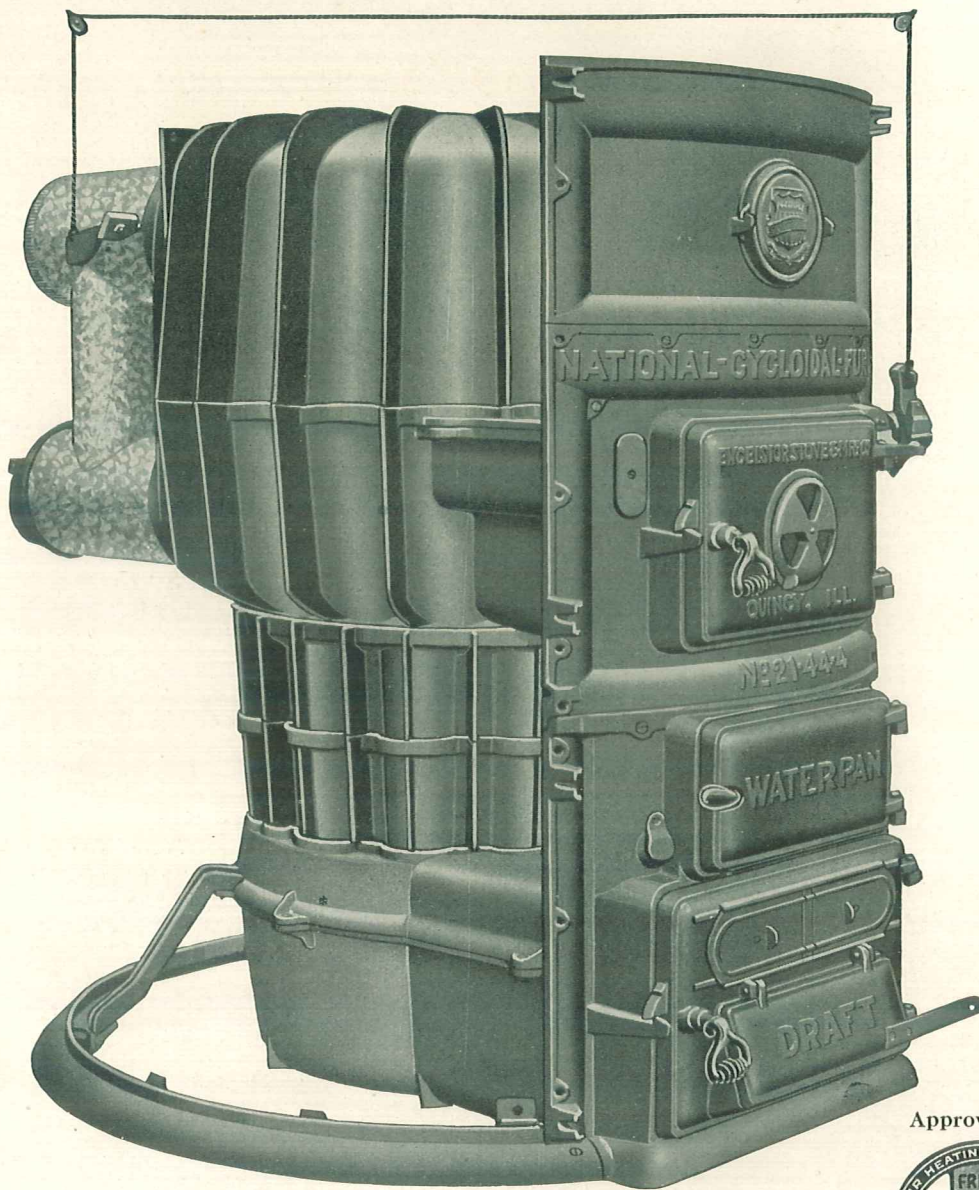
NATIONAL FURNACES  
ARE FUEL-SAVERS







# EXCELSIOR STOVE & MANUFACTURING COMPANY



A SERIES

## Cycloidal National Furnace For Coke, Coal, Wood, Gas and Oil

Note the wide flanges on combustion chamber, feed section and fire pots, structural features, which increase radiation and found only in CYCLOIDAL NATIONAL FURNACES.

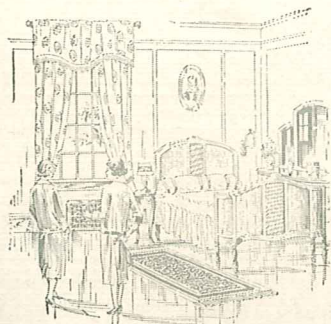
Description, Pages 5 to 12. Detail, Page 8

NATIONAL FURNACES ARE GREAT  
FUEL - SAVERS

Approved by

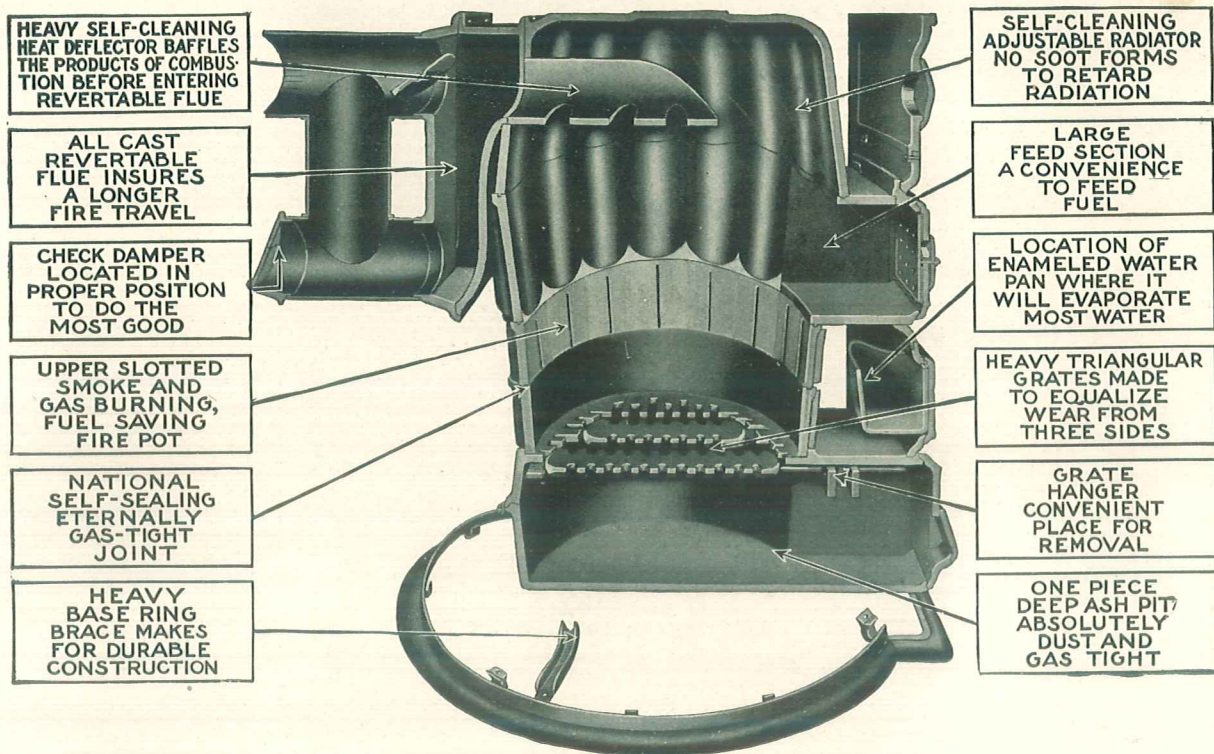


• TRADE MARK •





# NATIONAL STOVES, RANGES AND FURNACES



Cross Sectional View Showing

Approved by



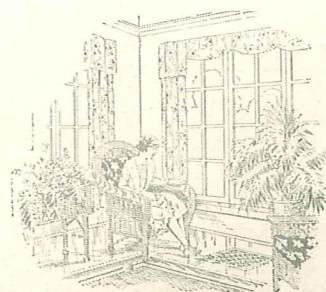
• TRADE MARK •

## Cycloidal National Furnace

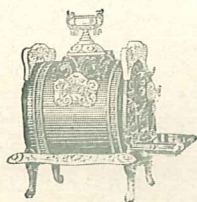
All Cycloidal National Furnaces are made of analyzed Gray Iron, the most durable fire-resisting metal known. Every furnace is properly fitted and assembled before leaving the factory.

We highly recommend that all NATIONAL FURNACES be installed according to the standard code, regulating the installation of warm-air furnaces in residences, issued and approved by the National Warm-Air Heating and Ventilating Association. All blue prints and specifications, issued from our office, are in keeping with the standard code. Our representatives are instructed to educate the dealers where possible that the code is a safe and sure guide to follow in this class of work. It will not only save time, but eliminate trouble and insure the user of a furnace an ideal system of installation, which will deliver the proper amount of heat required and obtain the best results from the furnace. On account of many of the dealers not being familiar with the standard code, we print it in full in this catalog. See pages 88 to 91.

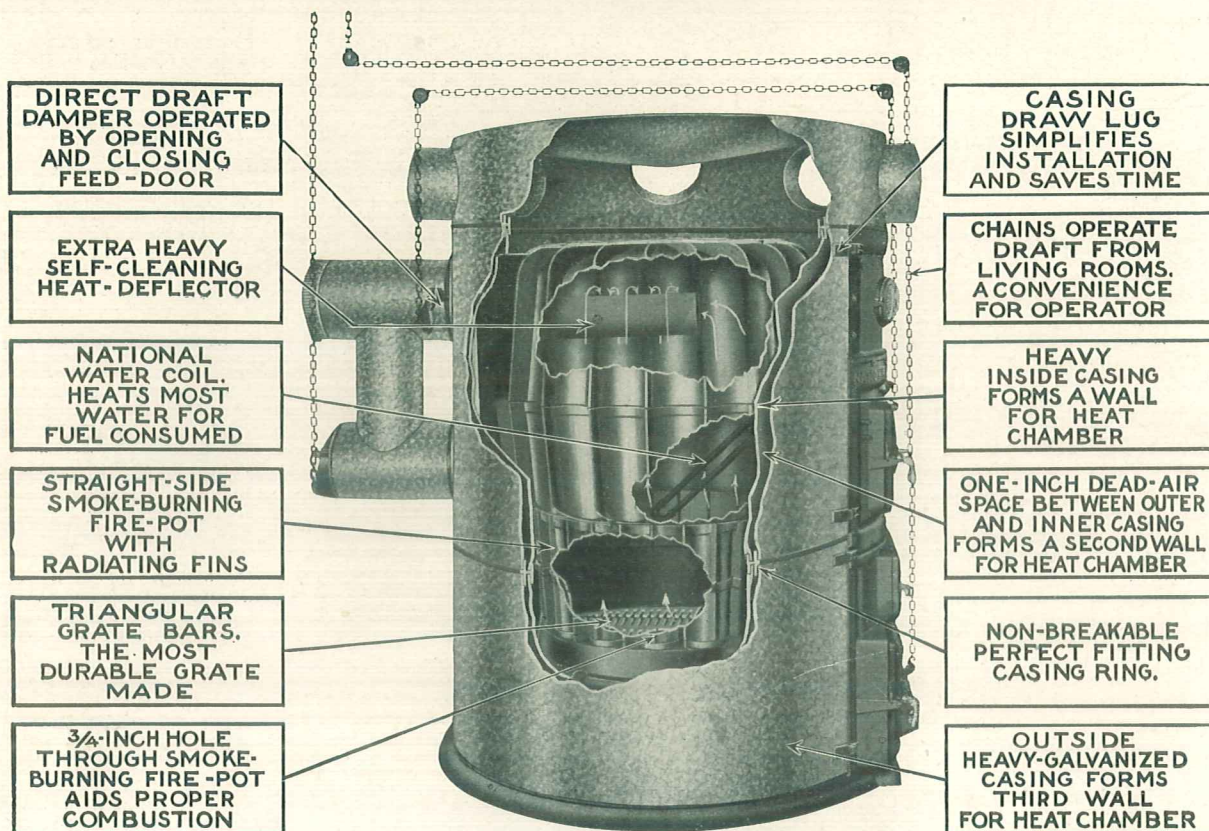
NATIONAL FURNACES THE GREAT  
FUEL-SAVERS







# EXCELSIOR STOVE & MANUFACTURING COMPANY



Sectional View with Casing

Approved by

A SERIES

## Cycloidal National Pipe Furnace

For Coke, Coal, Wood, Gas and Oil



• TRADE MARK •

CYCLOIDAL NATIONAL FURNACES have many exclusive features not found in other makes. Economy, convenience and satisfaction for the user.

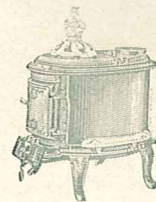
Also made in One-Register Style. See Page 28.

NATIONAL FURNACES ARE GREAT  
FUEL-SAVERS





# NATIONAL STOVES, RANGES AND FURNACES



FUEL-SAVING, SELF-CLEANING  
SOOT-PROOF RADIATOR WITH  
PROJECTING AIR-RADIATING  
FINS, INSURING GREATEST  
HEAT-RADIATING CAPACITY

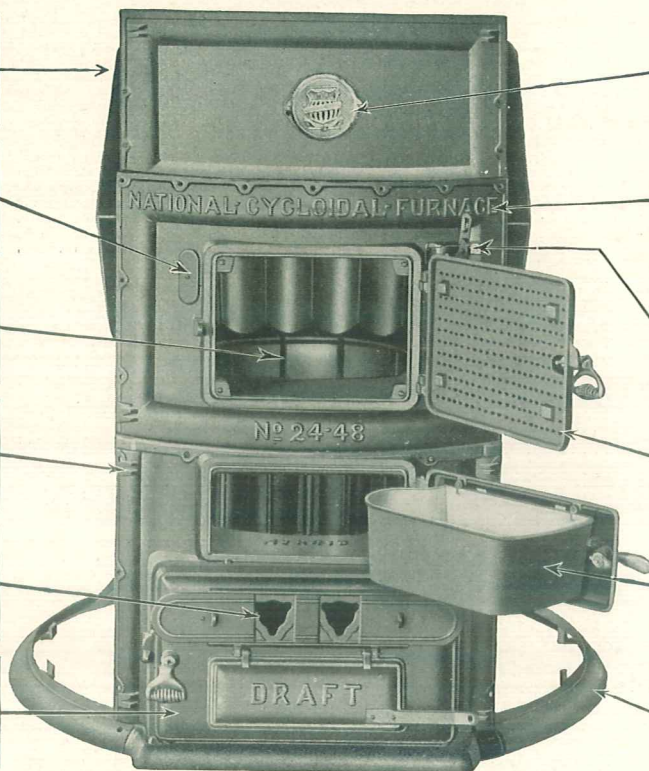
WATER-COIL HOLE-  
STOP, CONVENIENT  
FOR INSTALLING  
COILS FOR  
HEATING WATER

EXTRA HEAVY SLOTTED  
SMOKE-BURNING  
UPPER SECTION  
FUEL SAVING  
FIRE-POT

CASING  
DRAW-LUG  
INSURES  
PERFECT FIT  
OF CASING

SHAKER HOLES WITH AIR-  
TIGHT SLIDE COVER; SHAKER  
CANNOT BE REMOVED UNLESS  
BURNING SIDE OF GRATE IS IN  
PROPER POSITION TO FIRE

EXTRA LARGE ASH-DOOR  
FITTED AIR-TIGHT  
AND DUST-PROOF,  
CONVENIENT FOR  
REMOVING ASHES



REMOVABLE PLATE  
CONVENIENT TO  
PLACE BOLTS  
IN CASING  
WHEN ASSEMBLING

MAIN FRONT  
CONSTRUCTED TO  
ALLOW FOR  
PROPER EXPANSION  
AND CONTRACTION

AUTOMATIC DRAFT  
DAMPER CONTROL,  
OPERATES SMOKE-DRAFT  
DAMPER BY OPENING AND  
CLOSING FIRE-DOOR

LARGE  
FIRE-DOOR  
WITH  
FIRE PROOF  
SPARK ARRESTER

EXTRA LARGE CAST-IRON  
SANITARY ENAMELED  
WATER-PAN, EASILY  
ACCESSIBLE FOR FILLING,  
PRODUCING PROPER HUMIDITY

HEAVY  
SECTIONAL  
CAST-IRON  
BASE-RING

View of 12 Distinctive Features

Approved by



TRADE MARK

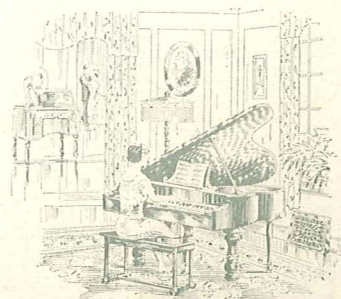
## Cycloidal National Furnace

For Coke, Coal, Wood, Gas and Oil

Note the porcelain-enameled water pan, removable for cleaning; grate-shaker openings and slotted fire pot. A self-cleaning furnace, with the largest active radiating surface. It burns the smoke.

Secure the Agency

NATIONAL FURNACES ALWAYS  
SATISFY







# EXCELSIOR STOVE & MANUFACTURING COMPANY

## A SERIES

### Cycloidal National Furnace

For Coke, Coal, Wood, Gas and Oil

Number of Furnace.....	21-44A	24-48A	27-51A	27-60A
Diameter Top of Fire Pot.....Inches	21	24	27	27
Depth of Fire Pot to Grate.....Inches	13½	14½	16	16
Diameter of Combustion Chamber, inside.....Inches	25½	28¾	32	32
Diameter of Combustion Chamber, outside, over all.....Inches	34	37	40	40
Diameter of Casing.....Inches	44	48	51	60
Height Lower Casing.....Inches	22	24	26	25⅝
Height Upper Casing.....Inches	30	32	33	33¾
Height of Castings.....Inches	53¼	57	60½	60½
Height with 15-inch Bonnet.....Inches	67	71	75	77¼
Size Feed-Door Opening.....Inches	9½x14	10¼x14	10¼x14	10¼x14
Size Ash-Door Opening.....Inches	11x18¾	11¾x21	13½x24	13½x24
Size Smoke Collar.....Inches	9	9	9	9
Size Water Coil Pipe for Range Boiler.....Inches	1	1	1	1
Size Evaporating Pan.....Quarts	8	8	8	8
Area Grate Surface.....Square Inches	314	418	551	551
Area Radiating Surface.....Square Feet	45.64	57.04	71.3	71.3
Amount of Warm-Air Area that may be used.....Square Inches	552	708	907	1000
Warm-Air Area within the Casing.....Square Inches	699	843	1005	1130
Heating Capacity.....In 1000 Cubic Feet	22-30	30-40	40-50	50-55
Shipping Weight, Furnace without Casing.....Pounds	1409	1637	2066	2142
Shipping Weight, Furnace with Casing.....Pounds	1535	1791	2220	2394
Price, Furnace without Casing.....Each	\$.....	\$.....	\$.....	\$.....
*Price, Double Casing with 15-inch Straight-Side Bonnet.....Each	.....	.....	.....	.....
No. 4 Water Coil—Capacity, 30-40 Gallons per hour.....Extra	.....	.....	.....	.....
Ash Pan.....Extra	.....	.....	.....	.....
For extra Bonnet height, add per inch all sizes.....Extra	.....	.....	.....	.....
New Sheer Temperature Control.....Extra	.....	.....	.....	.....

Can be furnished with wood-burning grate if desired.

We can furnish a special fire pot for the use of hard coal.

**Note**—Casing rings, 24 yards chain, asbestos cement and six pulleys included in above furnace prices.

Double-tee joints, page 18.

Water coil, page 11.

## Repairs

To facilitate ordering repair parts, or parts broken in transit, the CYCLOIDAL NATIONAL FURNACE is made with every piece of casting having a special number cast integral, which indicates that particular casting and no other. Therefore, dealers will please order parts wanted, using these special numbers, which obviates the necessity of a lengthy description.

## Cycloidal National Furnaces

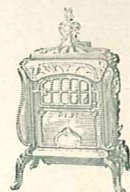
Have the individuality that makes them more desirable than all others.  
Note the increased radiating surface and self-cleaning feature of the  
CYCLOIDAL NATIONAL FURNACE.

NATIONAL FURNACES ARE GREAT  
FUEL-SAVERS





# NATIONAL STOVES, RANGES AND FURNACES

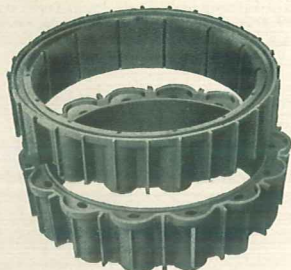


## Cycloidal National Furnace

The combustion of soft coal in the CYCLOIDAL NATIONAL FURNACE is as nearly perfect as is possible to obtain. Air, the element that produces combustion, is supplied to the fire at the bottom and top; it mixes with the escaping gases, making them combustible. The large combustion chamber above the fire pot is expanding space for the mixture in which the air and gases are burned with an incandescent flame, thereby completely eliminating the black smoke and soot, which is the manifestation of imperfect combustion.

The hypocycloidal shape of our CYCLOIDAL NATIONAL FURNACE, with its broad tangent flanges, presents immense surface for the air to impinge upon; it multiplies the radiating efficiency three times that of a flat surface; consequently, it produces three times the heating power of ordinary furnaces.

Compare the exposed radiating surface of the CYCLOIDAL NATIONAL FURNACE with that of any other furnace on the market.



### Hot-Blast Fire Pot

Thirty-five per cent of the heat value of soft coal consists of gases. Our construction of two-piece tubular fire pot with the self-sealing joint distributes a hot-blast air at the top, causing the combustion of the fuel at the top instead of the center of the fire. This increases the radiating power of the fire pot and prevents the accumulation of ashes around the edges of the fire pot which retards radiation.

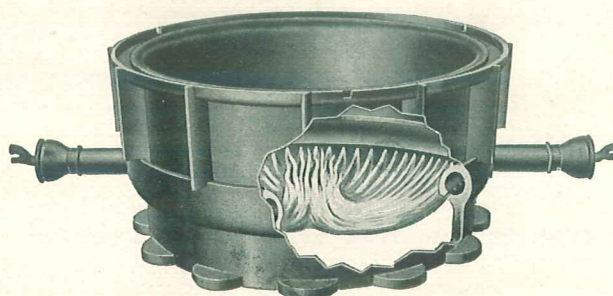
The fire pot is made in two parts; the expansion cup joint in the center prevents it from cracking. It is provided with fins on the outside that draw away any excessive heat and add materially to its radiating power. It is made exceptionally heavy; with the additional strength of the vertical flanges, it will withstand the periodical severe heat produced from soft coal.

Note that the lower half of the pot has tubular openings, the upper half slots; the air passing through the tubes becomes super-heated and enters the fire through the slots at the top of the fire only.

We can furnish a special Fire Pot for the use of Hard Coal

### Gas-Burning Fire Pot

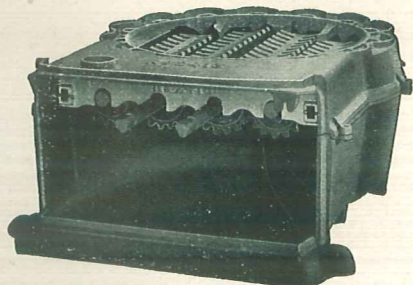
We furnish this Special Fire Pot for burning coal and natural gas, which may be used in our CYCLOIDAL NATIONAL FURNACE. The lower section of the pot is a cored casting with two 1½-inch gas inlets. The gas orifices are under the arch to prevent coal ashes from entering the gas belt. This fire pot permits using coal or gas at the same time, or separately, as desired. Best results are obtained with gas if artificial fuel is used.



	Price
No. 21-44 Gas Pot, extra.....	\$.....
No. 24-48 Gas Pot, extra.....	.....
No. 27-51 Gas Pot, extra.....	.....
No. 27-60 Gas Pot, extra.....	.....

**Note**—Two needle-point valves, air mixers and 14-inch pipe nipples included.

These prices are for the gas pot when furnished instead of the regular coal pot.



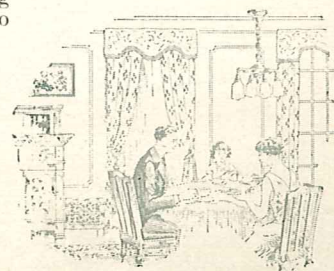
### Grates

The grate in our CYCLOIDAL NATIONAL FURNACE is the approved triangular revolving-bar type. It is geared into pairs, so that half the fire may be cleaned at a time, making it convenient for the operator. The bars are mounted independently. For renewal, they may be removed one at a time. No grate frame is used; therefore, it saves repairing and is decidedly easy to manipulate. An ingenious construction prevents the operator from removing the grate shaker without leaving all grate bars in their proper relation to the fire.

### Ash Pit

The ash-pit section is made in one piece nearly to the top; it is air- and ash-tight; there can be no leakage of ashes on the bottom into the casing where it finds its way into the rooms above. The bottom of the ash pit is flat; it has no projections that would prevent it from setting level. We recommend a layer of brick to be placed under the furnace to guard against damp earth.

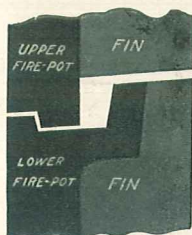
NATIONAL FURNACES ALWAYS  
SATISFY







# EXCELSIOR STOVE & MANUFACTURING COMPANY



## Self-Sealing Joints

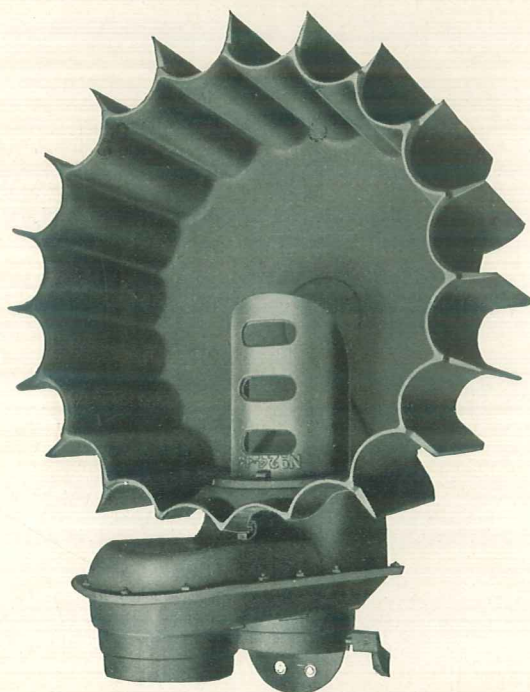
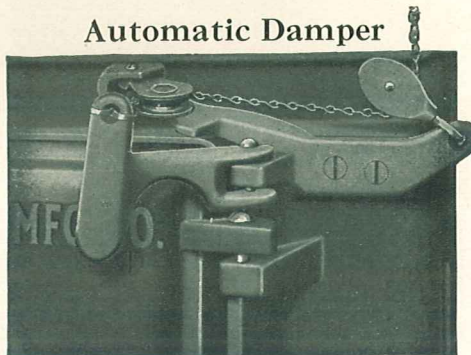
The joints in the CYCLOIDAL NATIONAL FURNACE are our invention of self-sealing cup joints. These joints are properly distributed to provide for the necessary expansion and

contraction of the castings. These cup joints should be filled with asbestos cement before setting castings together; also cement all door frames before placing into position.

The direct-draft damper is designed to remain closed at all times unless locked in an open position with the automatic device which operates in conjunction with the feed door. The direct-draft damper must be chained to the automatic device so that when the feed door is opened for replenishing the fire, it will automatically open the damper, thereby preventing

smoke or gases escaping into the cellar. This insures the fire control as desired by the operator

## Automatic Damper



## Cycloidal National Self-Cleaning Radiator, Baffle Plate and Reversible Flue

With Its Immense Radiating Surface

A furnace with a self-cleaning radiator must be appreciated by the housewife, since it is possible to have clean curtains and wall paper at all times. It not only saves labor, but money as well. Owing to the hypocyloidal shape, the broad tangent flanges present an immense surface for the air to impinge upon, and multiplies the radiating efficiency many times that of a flat surface; consequently, the heating power is greater than ordinary furnaces. The No. 21-44 Cycloidal Radiator is 28 inches in diameter. The circumference of a 28-inch circle is 87-96/100 inches. By measuring the outside circumference of the No. 21-44 Radiator, you will find it to be 14½ feet, or 100 per cent larger than other furnaces. The Nos. 24-48 and 27-51 and 27-60 will measure the same in proportion. This not only applies to the radiator, but to all working parts of the CYCLOIDAL NATIONAL FURNACE, which means 100 per cent more efficiency and a greater saving of fuel.

## Reversible Flue

The reversible flue on the CYCLOIDAL NATIONAL FURNACE is provided with a direct-draft damper which is operated automatically with the feed door. The check damper at the base of flue retards the draft of the furnace without interference with the chimney draft. On the contrary, it increases the circulation through the chimney by admitting waste air to fill the pipe which carries away any accumulation of soot in the chimney, and the carbonic-acid gases generated from the fire. The use of this check damper allows sufficient time for heat transmission to the air space within the casing through the agency of the cycloids and tangent fins, which completely envelop the body and fire pot of the furnace. These fins absorb the heat from the fire and combustion chamber, and present an enormous radiating surface for contact of the passing fresh air within the casing. The result of this excess radiation means more warm air out of each register and less fire in the furnace; therefore, less coal consumption.

## Heat Deflector

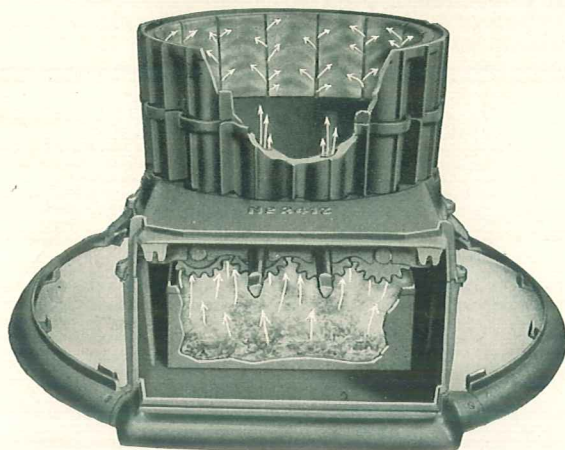
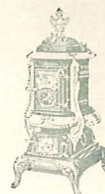
A heat deflector in the top of the combustion chamber baffles the products of combustion before entering the reversible flue. It is constructed open at the top and end. Small openings in the bottom of the deflector allow the ash accumulation to fall into the fire pot; therefore, all parts of the furnace interior are self-cleaning.

NATIONAL FURNACES ARE GREAT  
FUEL-SAVERS





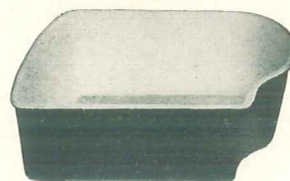
# NATIONAL STOVES, RANGES AND FURNACES



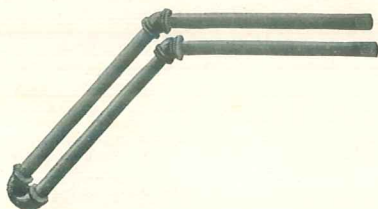
The CYCLOIDAL NATIONAL PATENTED SMOKE-BURNING FIRE POT not only performs the office of burning the gases and smoke, but eliminates ash dust when shaking the grates. The construction is such that the twelve  $\frac{3}{4}$ -inch holes distributed evenly around the fire pot of No. 21-44 equals an open space of 9 square inches. On Nos. 24-48, 27-51 and 27-60, fourteen  $\frac{3}{4}$ -inch holes, or an open space of  $10\frac{1}{2}$  square inches. When shaking grates, the fine dust is drawn up through these large fire pot openings into the combustion chamber. These openings are 200 per cent larger than found in other furnaces. This exclusive sanitary feature can be found only in CYCLOIDAL NATIONAL FURNACES, and will be appreciated by the operator.

## Evaporating Pan

A one-piece porcelain-lined water pan (clean as a china dish) is furnished with each CYCLOIDAL NATIONAL FURNACE. It is demountable for cleaning, and swings outward with the front door, making it convenient to fill with water. It is placed close to the fire pot where it derives sufficient heat to evaporate large quantities of water, thereby keeping the air in the rooms in a pure and healthful state.



## Water Coil



For heating water in the kitchen range boiler, openings are provided for the admission of a one-inch pipe coil. These are placed at the top of the feed door where they do not interfere with the shovel while feeding fuel into the fire pot. The water pipes may be extended entirely across the combustion chamber if desired, or extended downward at an angle to the fire pot. However, experience has taught that in doing so it provides too much hot water for domestic purposes, causing the boiler to steam. We recommend that the coil should not extend more than twelve inches inside the combustion chamber, with the downward slant that promotes circulation.

The large combustion chamber of this furnace makes it especially adaptable for combination warm-air and hot-water heating system—a convenience for heating remote rooms.

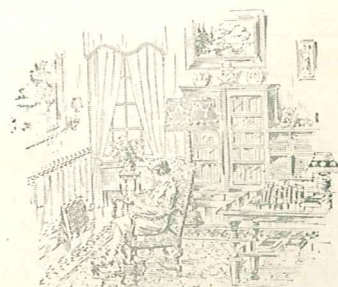
## Casings

The casings are made double, namely: An outer casing made of galvanized iron, the inner casing black iron with a one-inch air-circulating space between the two. The inner casing absorbs heat from the furnace and gives it off again to the passing air; it is far superior to corrugated tin or asbestos. The inner casing prevents the heat from reaching the outer casing, and minimizes the radiation into the cellar. The inner casing forms a secondary heating surface, which is too valuable to be omitted.

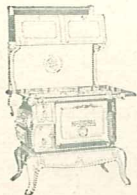
## Casing Rings

The casing rings are made from Armeo ingot iron, rolled especially for the purpose. They are non-breakable, neat and strong. The base ring is sectional cast iron. It is cast independently from the ash pit, permitting the use of a foundation for the ash section only, when the furnace is set over a cold-air pit.

NATIONAL FURNACES ALWAYS  
SATISFY







# EXCELSIOR STOVE & MANUFACTURING COMPANY

## Castings

All castings used in our NATIONAL furnaces are made from the same high-grade gray tested iron that is used daily in the manufacture of our line of NATIONAL stoves and ranges; which is a close-grain, strong metal, compounded especially to produce an iron that will resist the attack of fire. There are very few furnaces on the market in which the iron used will show an analysis equal in quality.

## Wall Regulator

This regulator is furnished free with every NATIONAL furnace. It is intended to be fastened to the door casing of the living-room, the chains passing through the floor.



One chain attaches to the front draft damper—the other to the check damper. This regulator permits the operator to handle the dampers without going into the cellar.

## Manifestly

NATIONAL furnaces are not like other furnaces. They contain the individuality and results of practical knowledge that has taken cognizance of the requirements of the men who have to do with the installation of furnaces, making our line exceptionally easy to assemble and install. All parts are shipped "knocked down"; the largest section will pass through any ordinary door opening.

The structural features are founded upon fact, and not theory. They are the best heat generators ever offered the public. The air circulation is unobstructed and will deliver an amount of warm air not possible to obtain from any other furnace. These features affect the coal pile to a remarkable degree, in that a decidedly notable saving is effected.

If our furnace would save not more than 10 per cent in fuel, then the purchase of any other kind means just 10 per cent tax paid annually. Inability to see, costs money. It is, therefore, well to look beyond the price-tag to obtain the service that makes for true economy.

## Guarantee

We guarantee all parts of our furnaces to be perfect and in working condition. We further guarantee the capacities as rated; if properly installed, they will cover the requirements. We do not guarantee results of installation.

## Installation

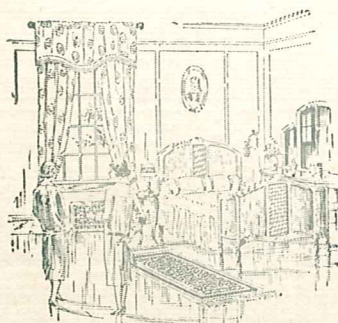
We are in position to furnish our customers expert assistance in making up necessary specifications for warm-air installation—if you can furnish us drawings of the building or blue prints off architect's drawings. If these are not available, send us a reasonably plain sketch of the building, giving size of rooms, location of all doors, windows and partition walls; also location and size of chimney. With this information we will be pleased to send you complete working plans so that any ordinary mechanic can install the furnace in a perfect manner.

### DIAGRAM OF COMPARISON RADIATING SURFACE



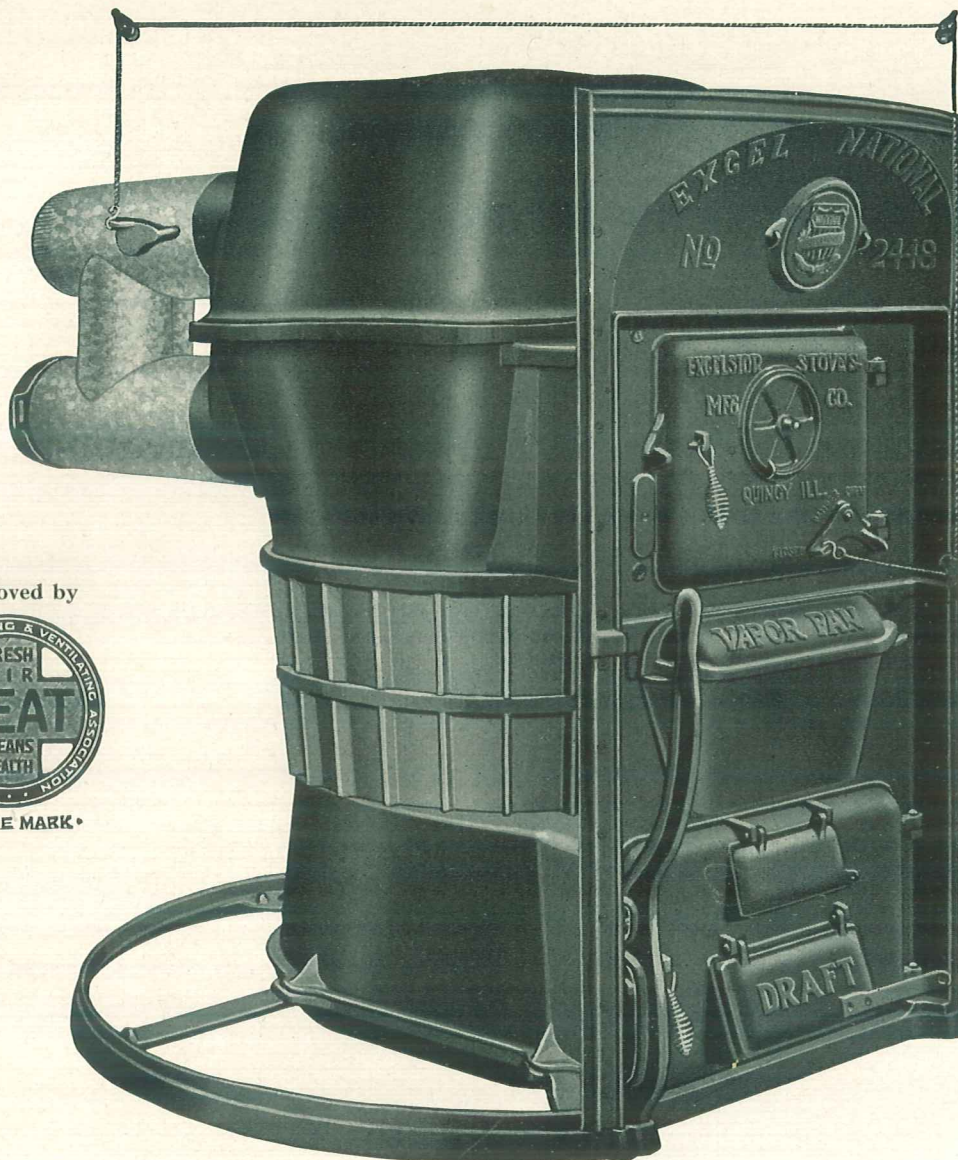
- A—Flat or smooth surface.
- B—Corrugated surface.
- C—Hypocycloid surface.

NATIONAL FURNACES ARE GREAT  
FUEL-SAVERS





# NATIONAL STOVES, RANGES AND FURNACES



Approved by



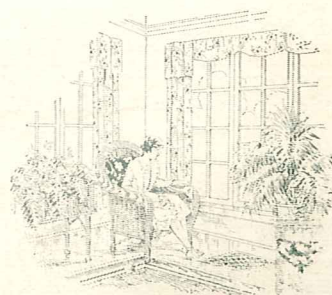
• TRADE MARK •

Open View

## Excel National Furnace For Coke, Coal, Wood and Oil

Description, Pages 15 to 18  
Detail, Page 15

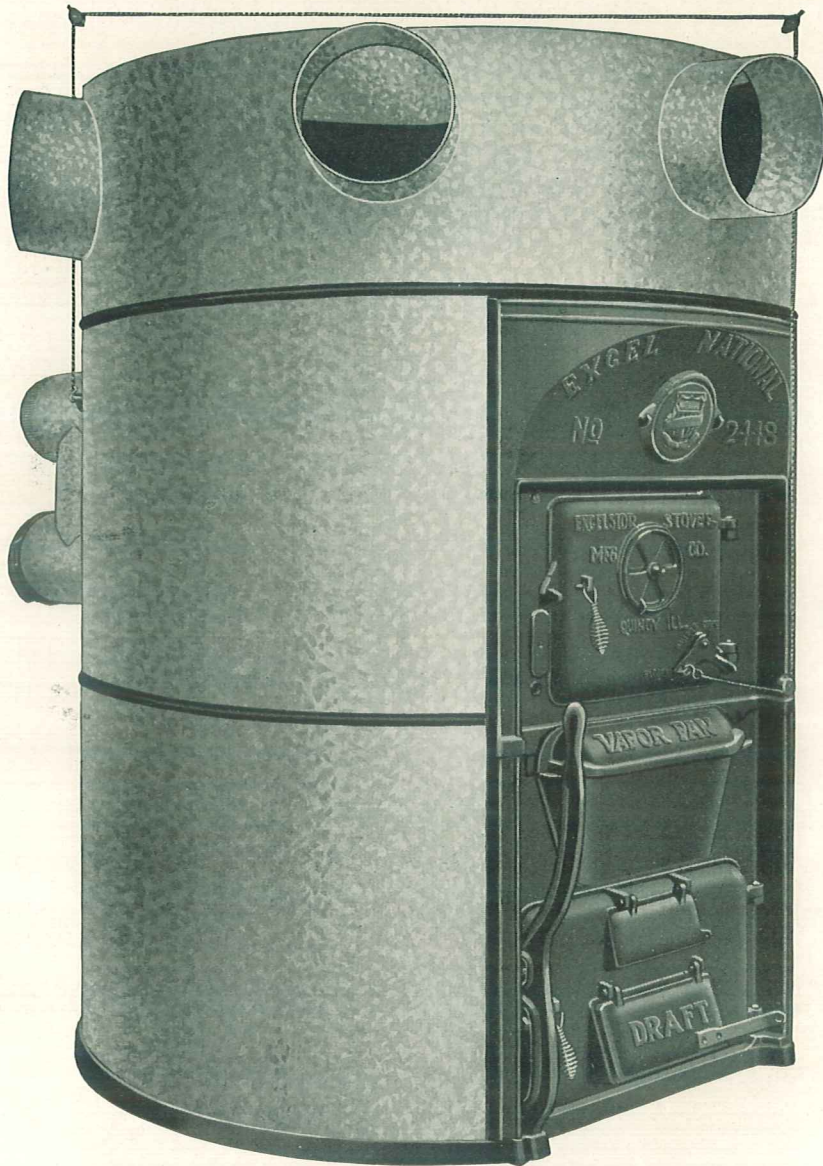
NATIONAL FURNACES ALWAYS  
SATISFY







# EXCELSIOR STOVE & MANUFACTURING COMPANY



Approved by



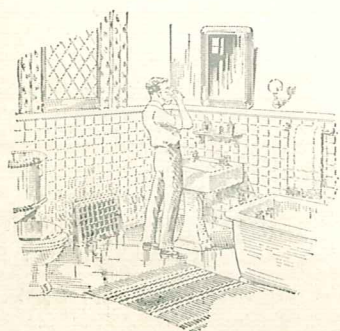
• TRADE MARK •

Showing Furnace with Casing Attached

## Excel National Furnace For Coke, Coal, Wood and Oil

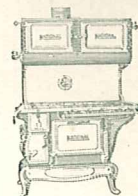
Detail, Page 15

NATIONAL FURNACES ARE MOST  
POWERFUL





# NATIONAL STOVES, RANGES AND FURNACES

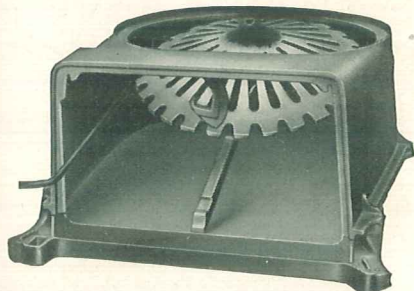


## Excel National Pipe Furnace Detail

Number of Furnace.....	18-38	20-40	22-44	24-48
Diameter Top of Fire Pot.....Inches	18	20	22	24
Depth of Fire Pot to Grate.....Inches	11	12	13	14
Diameter of Combustion Chamber, over all.....Inches	25½	29	31½	33
Diameter of Combustion Chamber, inside.....Inches	23	27	28½	30
Diameter of Casing.....Inches	38	40	44	48
Height Lower Casing.....Inches	18½	20	23⅞	24
Height Upper Casing.....Inches	23¾	23⅞	22	24
Height of Main Front Casting.....Inches	44¾	46	48	50
Height of Castings, over all.....Inches	43¾	46½	51	52¾
Height with 15-inch Bonnet.....Inches	60	61½	63½	65½
Size Feed-Door Opening.....Inches	9½x12	9½x12	11x14	11x14
Size Ash-Door Opening.....Inches	10x15½	10x15½	11½x18½	11½x20
Size Smoke Collar.....Inches	8	8	8	8
Size Water Coil Pipe for Range Boiler.....Inches	1	1	1	1
Size Vapor Pan.....Quarts	8	8	8	8
Area Grate Surface.....Square Inches	227	283	346	415
Amount of Warm-Air Area that may be used.....Square Inches	340	425	520	623
Warm-Air Area within the Casing.....Square Inches	453	502	608	724
Heating Capacity in 1,000 Cubic Feet.....	10-14	14-20	20-26	26-35
Shipping Weight Furnace without Casing.....	672	785	949	1164
Shipping Weight Furnace with Casing.....	779	895	1065	1252
Price Furnace without Casing.....Each	\$.....	\$.....	\$.....	\$.....
*Price, Double Casing with 15-inch Straight-Side Bonnet.....Each	.....	.....	.....	.....
For Extra Bonnet Height over 15 inches, add per inch.....	.....	.....	.....	.....
For Triangular Bar Grate instead of Cone Grate, add.....	.....	.....	.....	.....
Mounted with Ball-Bearing Cone-Center Grate unless otherwise ordered.....	.....	.....	.....	.....
Wood Grate.....Extra	.....	.....	.....	.....
No. 5 Water Coil.....Extra	.....	.....	.....	.....
New Sheer Temperature Control.....Extra	.....	.....	.....	.....

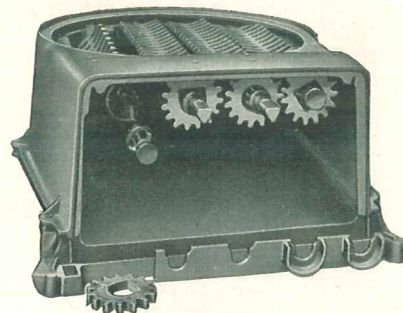
Water coil, page 17. For double-tee joint, page 18.

### Grates



Showing Ash Pit with Ball Bearing, Self-Cleaning Cone-Center Grate

The EXCEL NATIONAL self-cleaning, cone-center grate is arranged so it can be operated by a lever handle—on outside of furnace—without opening any doors. By an ingenious device, the front part of grate can be lowered for removal of clinkers, and replaced in an easy manner. The EXCEL NATIONAL FURNACE can also be furnished with a triangular-bar grate geared into pairs, consisting of two long and two short bars mounted independently,



Showing Ash Pit with Removable Triangular Grate

easy to operate, and can be removed one at a time for renewal. An ingenious construction prevents the operator from removing the grate shaker without leaving all grate bars in their proper relation to the fire.

### Ash Pits

All EXCEL NATIONAL ash pits are made in one piece, extra deep and mounted to bottom with our double sealing joint, making them absolutely air-, dust-, gas- and ash-tight. They are made extra deep, preventing the grates from burning out, and allowing extra space for ash accumulation. They are assembled at the factory and ready to install, without spending additional time and labor upon their arrival. A depression cast in the main bottom simplifies the centering of furnace, when setting and installing it in pipeless style.

NATIONAL FURNACES ARE MOST  
DURABLE







# EXCELSIOR STOVE & MANUFACTURING COMPANY

## Excel National Self-Cleaning Combustion Chamber with Removable Baffle Plate and Revertible Flue



Combustion Chamber with Immense Radiation Surface and Self-Mounting Baffle Plate

The self-cleaning combustion chamber is a great improvement over other makes. Long, deep corrugations add to the strength, heating power and self-cleaning features. No soot to clean out or interfere with heat radiation. It is so constructed that a continuous radiation of heat is obtained as long as any fire remains in the furnace. No radiators to clean; hence, no smoke, no soot, no dirt, no dust to contend with when using a self-cleaning EXCEL NATIONAL FURNACE.

Adjustable to fit any chimney location and permitting smoke pipe to be connected at any angle. Each part of every EXCEL NATIONAL FURNACE has its own special sanitary features.

## Fire Pot

Fire pot is made in two sections, reinforced with extra heavy ribs every  $3\frac{1}{2}$  inches, to withstand heavy firing. It is so constructed to prevent ashes from accumulating on inside wall, prolonging the life of fire pot and insuring greatest possible heat radiation at all times. The sides are nearly straight, so the fire does not rest upon the fire pot, but merely against it, insuring greatest durability. Additional radiation is obtained by the many extra projections added to the upper and lower fire pots, greatly increasing the heating capacity.



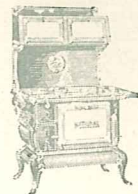
Two-Piece Straight-Side Ribbed Deep Fire Pot, Large Cup Joints, Extra Heavy and Durable

NATIONAL FURNACES DO PERFORM





# NATIONAL STOVES, RANGES AND FURNACES



## Excel National Furnace Casing

### Casing for Pipe Furnace

The casing for the EXCEL NATIONAL PIPE FURNACE is made double, consisting of one outside heavy galvanized-iron casing, and one inside heavy black-iron casing separated by one inch of air space. This form of construction prevents heat from radiating into the basement, and increases the heating efficiency of the furnace. The straight-side bonnets provide large warm-air space, allowing direct runs of heat leader pipes.

### Casing for Pipeless Furnace

The casing of EXCEL NATIONAL PIPELESS FURNACE consists of a heavy galvanized-iron outer casing with an inner casing made of three distinct walls; one flat heavy galvanized-iron outer wall; one-half inch asbestocel corrugated fire-proof center wall; and one heavy galvanized corrugated-iron inner wall. This construction positively prevents heat radiation into cold-air chamber, insuring greater heating efficiency of the furnace.

The cone bonnet is made the same as the inner casing, excepting that the inner wall of the cone is made of heavy flat galvanized-iron instead of corrugated galvanized-iron. The flat galvanized-iron construction at this point permits a free flow of warm air.

### Casing Rings

Casing rings are fabricated in our own factory from Armeo ingot iron, strong and durable and neat in workmanship. The base ring is made in sections of cast iron, independent from the ash pit, permitting the use of a foundation for ash-pit section only when furnace is erected over a cold-air pit.



### National Water Coil

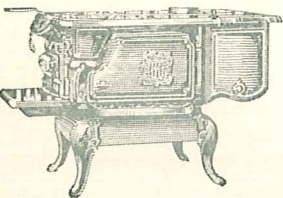
The EXCEL NATIONAL FURNACE can be furnished with a two-pipe water coil to heat water in range boiler.

The coil enters furnace inside the feed chute and crosses the top of fire pot. It is capable of heating ample water for domestic purposes.

NATIONAL FURNACES ARE HIGH  
GRADE





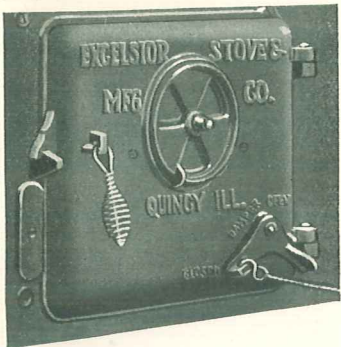


# EXCELSIOR STOVE & MANUFACTURING COMPANY

## Automatic Damper

The direct-draft damper is so constructed to remain in a closed position; unless opened by the automatic lever handle attached to feed door, on which it is connected. When firing furnace, the opening of feed door automatically opens direct-draft damper, which positively prevents any smoke or gases from escaping, and insures perfect fire control, as well as fuel-saving.

Direct-draft damper may also be opened while feed door is closed by turning automatic lever handle on feed door one-half turn to right. This is but one of the many exclusive features embodied in the EXCEL NATIONAL FURNACE.



## Feed Door

The feed door is made exceptionally roomy to accommodate large pieces of coal and rough chunks of wood; it is properly fitted and equipped with an always-cold, wire-drop handle for opening and closing. The air blast attached through register-wheel opening in feed door is carried down and discharged over fire pot in a fan-shape fashion at a highly-heated state, creating an incandescent flame, consuming all smoke and gases as they arise from the fire, producing perfect combustion. This insures a vast saving in fuel and resulting in the greatest number of heat units for amount of fuel consumed.

## Vapor Pan

Made in one piece of cast iron; capacity, 8 quarts; easily removed for cleaning; located conveniently for refilling with water. Scientifically placed so that its proximity to fire pot will at all times receive sufficient heat to evaporate required amount of water, allowing a constant flow of pure air of proper humidity to the rooms, insuring healthful conditions.



Style A

## Double-Tee Joint

Made of Galvanized Iron

- |                                                                             |         |
|-----------------------------------------------------------------------------|---------|
| Style A or B, for No. 21-44 Cycloidal Furnace, only, each.....              | \$..... |
| Style A or B, for No. 24-48 Cycloidal Furnace, only, each.....              |         |
| Style A or B, for No. 27-51 or No. 27-60 Cycloidal Furnace, only, each..... |         |
| Style A or B, for all Excel Pipe Furnaces, only, each.....                  |         |
| Style A or B, for all Excel Pipeless Furnaces, only, each.....              |         |



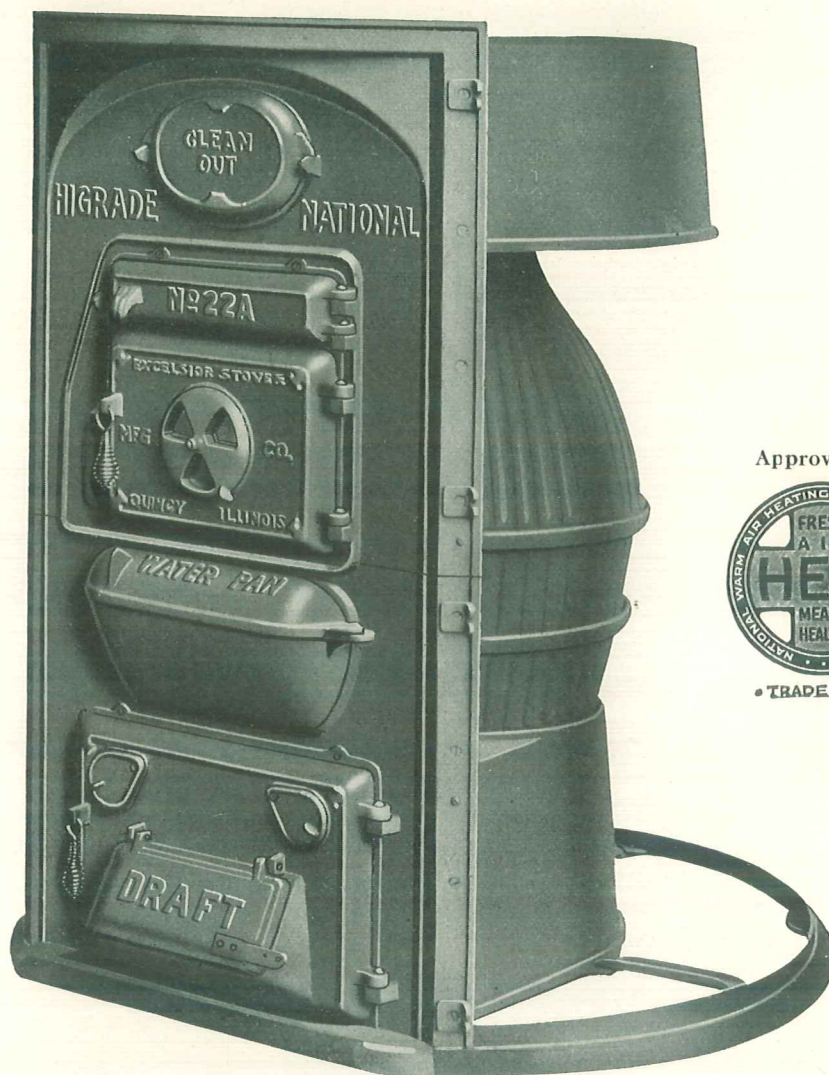
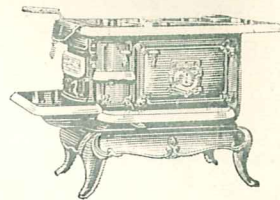
Style B



NATIONAL FURNACES ARE  
FUEL - SAVERS



# NATIONAL STOVES, RANGES AND FURNACES



Approved by



• TRADE MARK •

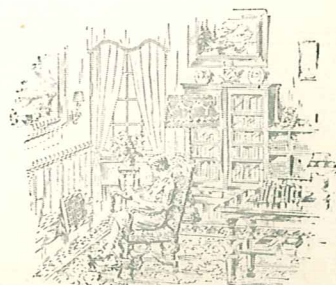
A SERIES

## Higrade National Furnace For Coke, Coal, Wood and Oil

Description, Pages 20 to 22

Detail, Page 21

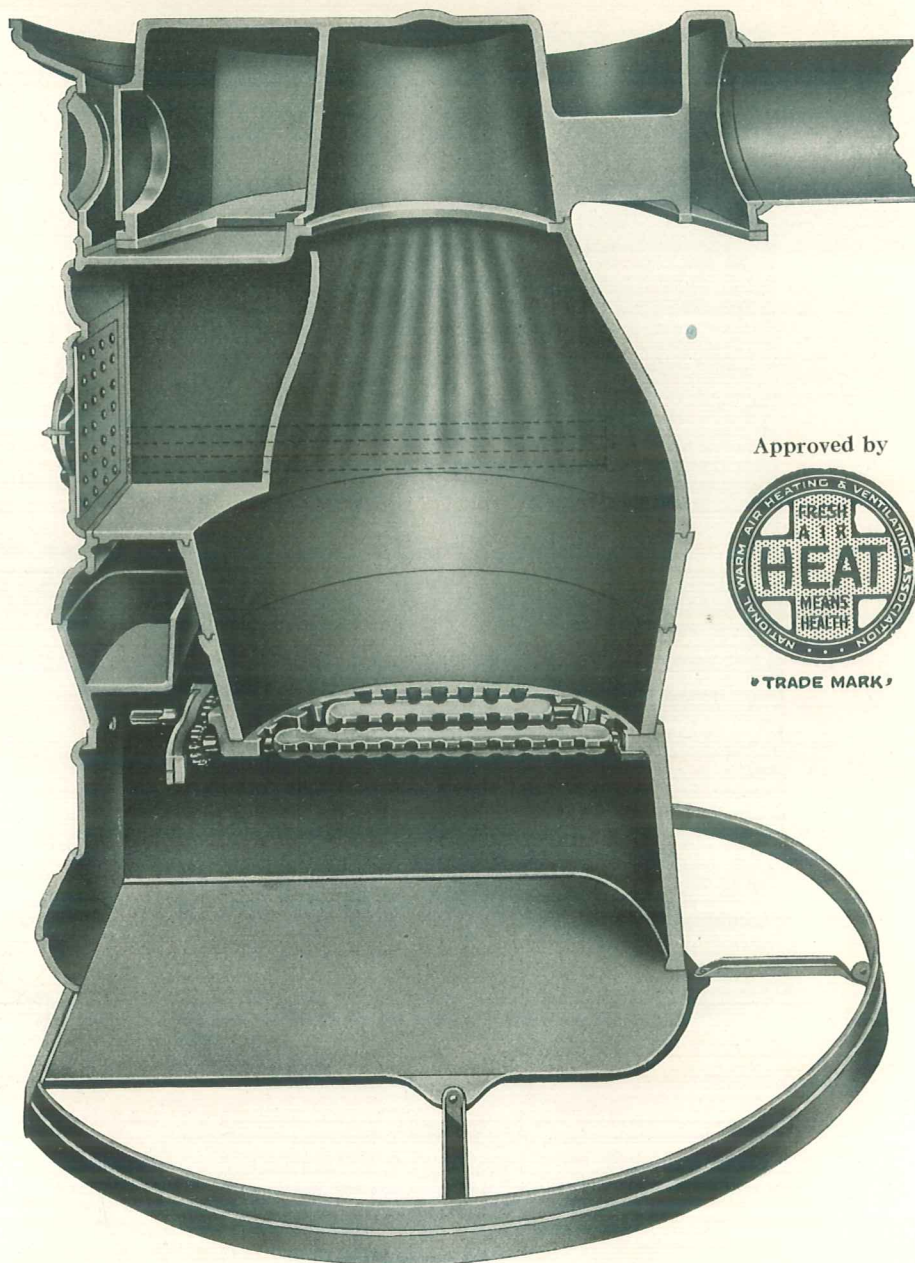
NATIONAL FURNACES ARE GREAT  
FUEL-SAVERS







# EXCELSIOR STOVE & MANUFACTURING COMPANY



Approved by



TRADE MARK

Cross Sectional View

## Higrade National Furnace

The above illustrates our HIGRADE NATIONAL FURNACE cut in half, showing the interior, the joints, large feed opening, large flue space in the radiator. Dotted lines indicate position of the water coil to heat water for domestic use.

Exceptionally durable and powerful heater.

NATIONAL FURNACES ARE EASY  
TO OPERATE





# NATIONAL STOVES, RANGES AND FURNACES



## Detail

### A SERIES

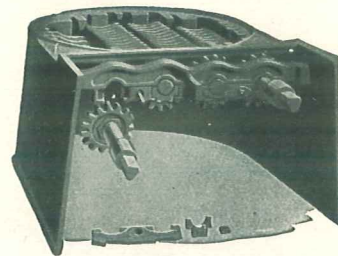
## Higrade National Pipe Furnace

For Hard Coal, Soft Coal, Coke, Wood and Oil

Number of Furnace.....		28A
Diameter Top of Fire Pot.....	Inches	27
Depth of Fire Pot to Grate.....	Inches	14
Diameter of Radiator.....	Inches	37½
Diameter of Casing.....	Inches	52
Height Lower Casing.....	Inches	26
Height Upper Casing.....	Inches	26
Height of Castings.....	Inches	54
Height with 15-inch Bonnet.....	Inches	69
Size Feed-Door Opening.....	Inches	13x14½
Size Ash-Door Opening.....	Inches	12x20¼
Size Smoke Collar.....	Inches	9
Size Water Coil Pipe for Range Boiler.....	Inches	1
Size Water Pan.....	Quarts	10
Area Grate Surface.....	Square Inches	500
Amount of Warm-Air Area that may be used.....	Square Inches	834
Warm-Air Area within the Casing.....	Square Inches	932
Heating Capacity per 1,000 Cubic Feet.....		40-46
Shipping Weight Furnace without Casing.....	Pounds	1482
Shipping Weight Furnace with Casing.....	Pounds	1632
Price Furnace without Casing.....	\$	
Price Furnace with 15-inch Straight-Side Bonnet.....		
Wood Grate.....	Extra	
No. 5 Water Coil.....	Extra	
For extra Bonnet height, add per inch, all sizes.....	Extra	
New Sheer Temperature Control.....	Extra	

## Ash Pit and Grates

The ash pit is extra deep and will protect the grates for a longer period of time by reason of a large space for ash accumulation. The fitting joints are an improvement over other furnaces of this kind. A cup joint, instead of a single joint, is used where base connects to bottom, making it absolutely ash- and gas-tight. The bottom is flat and sets level, which prevents any warping or opening of joints. It is advisable to use a layer of brick or cement base to be placed under the furnace, to guard against damp earth.

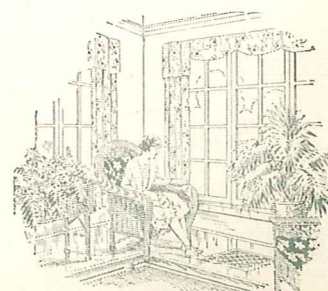


Ash Pit and Grates

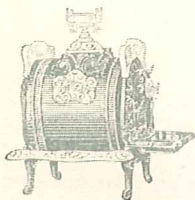
## Grate

The grate in HIGRADE NATIONAL is the approved, triangular, revolving-bar type. It is geared into pairs, so that half the fire may be cleaned at a time, making it convenient for the operator. The bars are mounted independently. An ingenious construction prevents the operator from removing the grate shaker without leaving all grate bars in their proper relation to the fire. It also permits the operator to equalize the wear on all sides of the grate bars, prolonging the life of the grate.

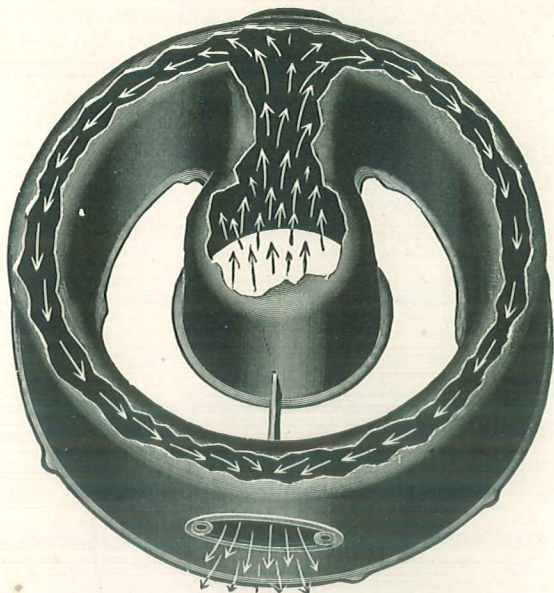
NATIONAL FURNACES ALWAYS  
SATISFY







# EXCELSIOR STOVE & MANUFACTURING COMPANY



All Cast Radiator, Showing Heat Travel, Extra Large Flues for Soft Coal or Wood

Radiator is adjustable and made of analyzed gray cast-iron, which is the only metal that will withstand the strain of soft coal. The center section is extra large, allowing the smoke and gases to pass out of the furnace dome and into the radiator, facilitating the draft and radiation. The joint where the radiator fits onto dome, is a deep improved cup shape, with a cast flange or hood covering the cement in the joints, which holds it in place. In making radiator in two sections as we do, it insures an even thickness throughout, which permits equal expansion and contraction of the metal and prevents fire-cracking.

## Fire Pot

A two-piece corrugated heavy and durable gray cast-iron fire pot, with our improved cup joints, to hold cement in place. It is made with sides nearly straight; the fire does not rest upon the pot—merely against it; therefore, it will be found extra durable, and radiates the maximum of heat.



Two-Piece Deep Corrugated Fire Pot with Large Cup Joints—Very Heavy and Durable

## Feed Doors

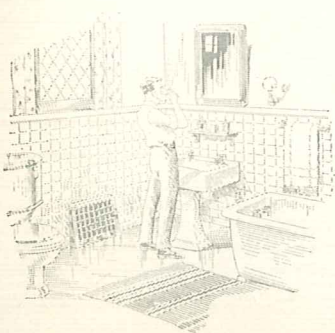
Feed doors are made double, permitting the operator to feed large chunks of wood if desired. Opening of 28A is 13x14½ inches.



## Evaporating Pan

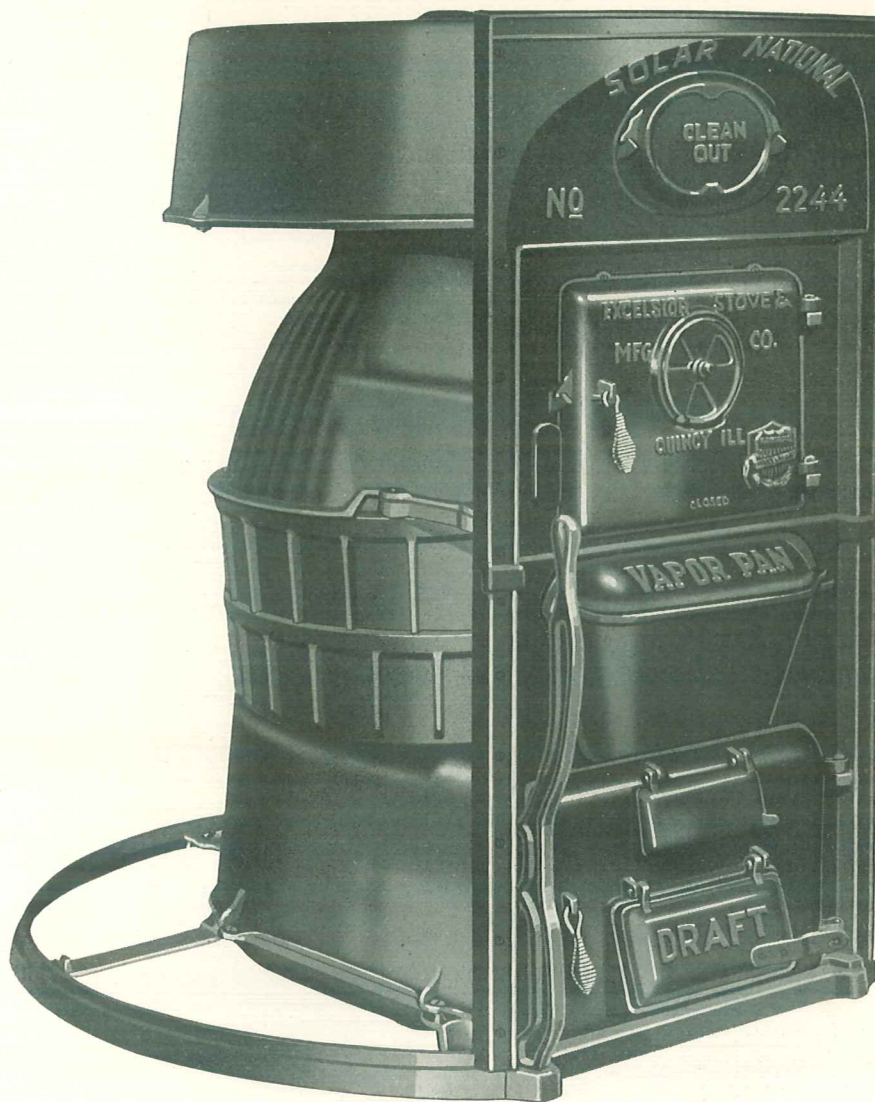
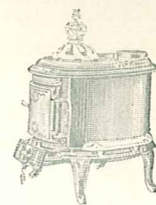
A cast-iron, one-piece water pan is furnished with every HIGRADE NATIONAL FURNACE, placed in a convenient position to fill with water. It is removable for cleaning and is located close to the fire pot, where it derives sufficient heat to evaporate large quantities of water, thereby keeping the air in the rooms in a pure and healthful state.

NATIONAL FURNACES ARE GREAT  
FUEL-SAVERS





# NATIONAL STOVES, RANGES AND FURNACES



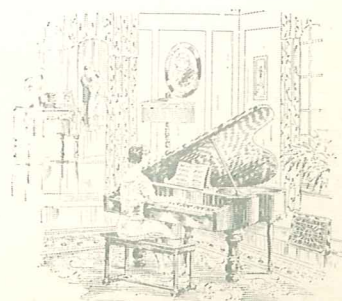
Open View

## Solar National Furnace For Coke, Coal, Wood and Oil

Description, Pages 24 to 27

Detail, Page 25

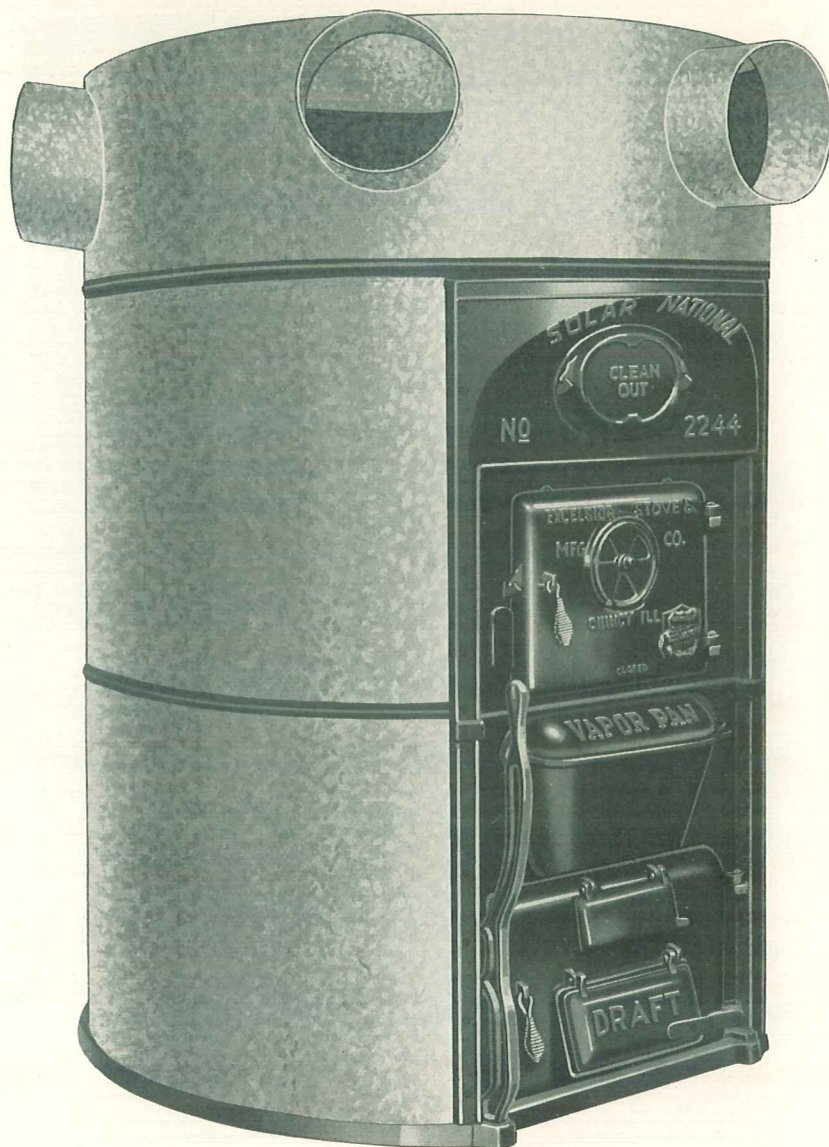
NATIONAL FURNACES ALWAYS  
SATISFY







# EXCELSIOR STOVE & MANUFACTURING COMPANY



Showing Furnace with Casing Attached

## Solar National Furnace For Coke, Coal, Wood and Oil

Detail, Page 25



NATIONAL FURNACES ARE EASY TO  
OPERATE



# NATIONAL STOVES, RANGES AND FURNACES



## Detail

### Solar National Pipe Furnace For Hard Coal, Soft Coal, Coke, Wood or Oil

Number of Furnace.....	20-40	22-44	24-48
Diameter Top of Fire Pot.....Inches	20	22	24
Depth of Fire Pot to Grate.....Inches	12	13	14
Diameter of Radiator.....Inches	29	30½	32½
Diameter of Casing.....Inches	40	44	48
Height Lower Casing.....Inches	20	23⅞	24
Height Upper Casing.....Inches	24	24	26
Height of Castings, over all.....Inches	47	50	53
Height with 15-inch Bonnet.....Inches	62½	65½	66
Size Feed-Door Opening.....Inches	9½x12	11x14	11x14
Size Ash-Door Opening.....Inches	10x15½	11½x18½	11½x20
Size Smoke Collar.....Inches	8	8	8
Size Water-Coil Pipe for Range Boiler.....Inches	1	1	1
Capacity Water Pan.....Quarts	8	8	8
Area Grate Surface.....Square Inches	283	346	415
Amount of Warm-Air that may be used.....Square Inches	425	520	623
Warm-Air Area within the Casing.....Square Inches	502	608	724
Heating Capacity in 1000 Cubic Feet.....	14-20	20-26	26-35
Shipping Weight Furnace without Casing.....	785	950	1170
Shipping Weight Furnace with Casing.....	895	1065	1275
Price Furnace without Casing.....Each	\$.....	\$.....	\$.....
Price, Double Casing with 15-inch Straight-Side Bonnet.....Each	.....	.....	.....
Price, Tee Joint.....Each	.....	.....	.....
For Triangular-Bar Grate instead of cone grate, add.....	.....	.....	.....
Mounted with Ball-Bearing Cone Grate unless otherwise ordered.....	.....	.....	.....
Wood Grate.....Extra	.....	.....	.....
No. 5 Water-Coil.....Extra	.....	.....	.....
New Sheer Temperature Control.....Extra	.....	.....	.....

## DESCRIPTION

The Solar National Warm-Air Furnace is the most modern, medium-priced warm-air heating furnace, containing exclusive features, embodying advanced ideas in design and construction, ease in operation, efficiency, durability and greater fuel economy than any other furnace of similar type on the market.

Every part of the Solar National Furnace, to the smallest detail, has been carefully and scientifically considered, worked out and tested, before placing it on sale.

The double sealing-cup joints is but one of its many exclusive features, are so constructed to insure absolute gas and smoke-tight fittings.

The best quality of analyzed pig iron only is used in the manufacture of Solar National Furnaces, which is the most durable metal known, and contains the greatest fire-resistant. All castings are properly fitted, allowing free expansion and contraction of all parts.

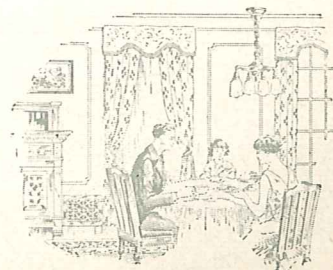
The weight of all parts have been distributed to insure lasting wear and longest life.

Solar National Furnaces are made in three sizes. Embodying all constructional improvements known to modern furnace-craft, resulting in increased radiation, great saving of fuel, convenience and cleanliness; all of which are a direct benefit to the user, affording the dealer and his customer the benefit of our 35 years of experience as practical foundry operators and furnace builders.

Upper radiator is adjustable, and can be placed to meet most any chimney location in the basement, and also permits the user to place the furnace front in a convenient position for fueling. Perfect combustion of fuel is obtained by using the hot-blast draft in feed door, and eliminates the soot and black smoke. The ball-bearing, cone-center, self-cleaning grate is a labor-saving feature and can be operated without exertion by a child. Grate lever handle is mounted in position, no time lost attaching shakers, and always ready for use. Deep ash pits prolong the life of the grates and are more convenient for removing ashes.

Every Solar National Warm-Air Furnace is properly fitted, assembled, and given the most rigid inspection before packing and shipping.

NATIONAL FURNACES ALWAYS  
SATISFY







# EXCELSIOR STOVE & MANUFACTURING COMPANY

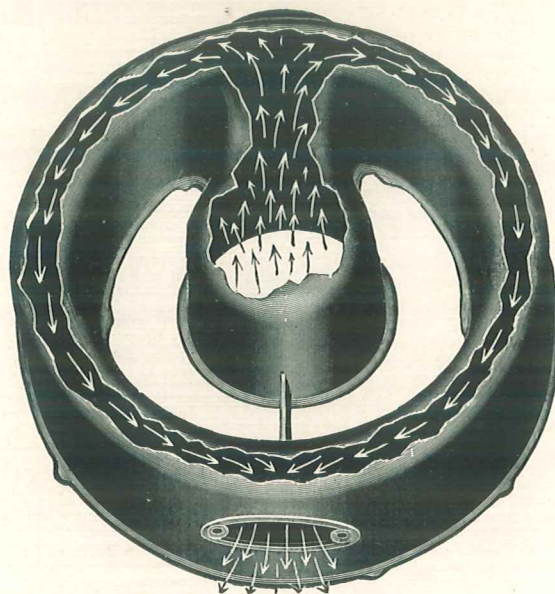


Extra Heavy and Durable Two-Piece  
Straight-Side Ribbed Deep Fire Pot, with  
Large Cup Joints.

## Fire Pot

Fire pot is made in two sections, reinforced with extra heavy ribs every  $3\frac{1}{2}$  inches, to withstand heavy firing. It is so constructed to prevent ashes from accumulating on inside wall, prolonging the life of fire pot and insuring greatest possible heat radiation at all times. The sides are nearly straight, so the fire does not rest upon the fire pot, but merely against it, insuring greatest durability. Additional radiation is obtained by the many extra projections added to the upper and lower fire pots, greatly increasing the heating capacity.

Radiator is adjustable and made of analyzed gray cast-iron, which is the only metal that will withstand the strain of soft coal. The center section is extra large, allowing the smoke and gases to pass out of the furnace dome and into the radiator, facilitating the draft and radiation. The joint where the radiator fits onto dome, is a deep improved cup shape, with a cast flange or hood covering the cement in the joints, which holds it in place. In making radiator in two sections as we do, it insures an even thickness throughout, which permits equal expansion and contraction of the metal and prevents fire-cracking. Cast pipe extends through casing where tee joint connects to radiator for smoke pipe.



All-Cast Radiator, Showing Heat Travel. Extra  
Large Flues for Soft Coal or Wood

NATIONAL FURNACES ARE GREAT  
FUEL-SAVERS



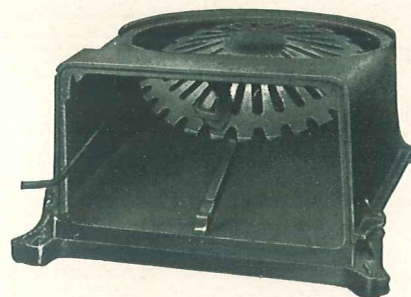


# NATIONAL STOVES, RANGES AND FURNACES

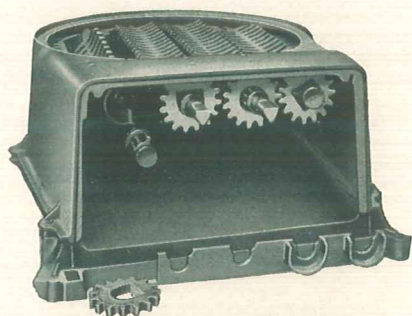


## Grates

The SOLAR NATIONAL self-cleaning, cone-center grate is arranged so it can be operated by a lever handle—on outside of furnace—without opening any doors. By an ingenious device, the front part of grate can be lowered for removal of clinkers, and replaced in an easy manner. Cone-center grate always shipped unless otherwise ordered.



Showing Ash Pit with Ball Bearing, Self-Cleaning Cone-Center Grate



Showing Ash Pit with Removable Triangular Grate

The SOLAR NATIONAL FURNACE can also be furnished with a triangular-bar grate geared into pairs, consisting of two long and two short bars mounted independently, easy to operate, and can be removed one at a time for renewal. An ingenious construction prevents the operator from removing the grate shaker without leaving all grate bars in their proper relation to the fire.

## Evaporating Pan

A cast-iron, one-piece water pan is furnished with every SOLAR NATIONAL FURNACE, placed in a convenient position to fill with water. It is removable for cleaning and is located close to the fire pot, where it derives sufficient heat to evaporate large quantities of water, thereby keeping the air in the rooms in a pure and healthful state.

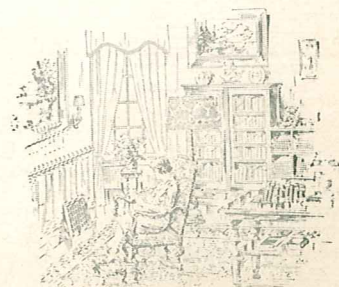
## Water Coil



The SOLAR NATIONAL FURNACE can be furnished with a two-pipe water coil to heat water in range boiler.

The coil enters furnace inside the feed chute and crosses the top of fire pot. It is capable of heating ample water for domestic purposes.

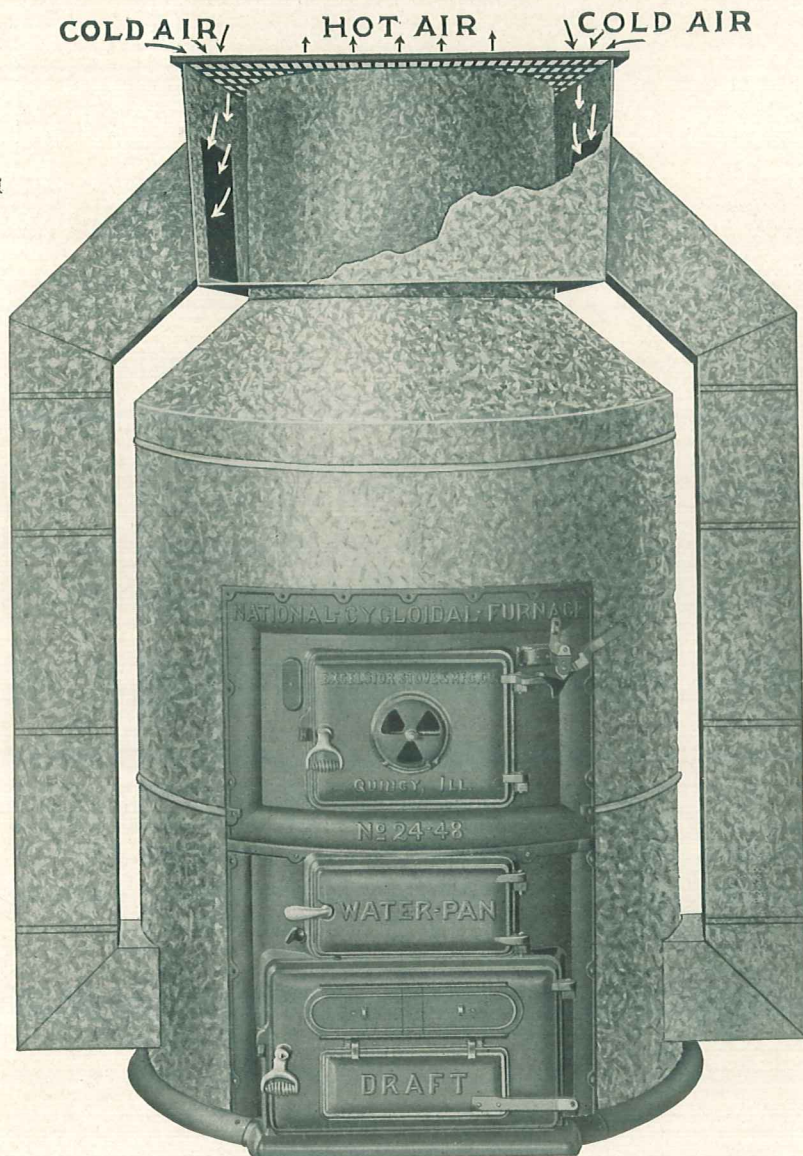
NATIONAL FURNACES ARE GREAT  
FUEL-SAVERS







# EXCELSIOR STOVE & MANUFACTURING COMPANY

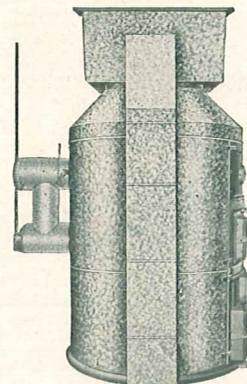


Sectional View

B SERIES

## Cycloidal National Unit Furnace

Description, Pages 4 to 12 and 29



Side View

Excelsior Stove & Mfg. Co.  
Quincy, Ill.

We enclose you photo of our new building which has recently been completed, and we have installed one of your No. 24-48 Cycloidal National Unit Furnaces for our heating system.

We find this the best heating proposition for our store that has ever been our pleasure to enjoy. We can keep this room at just the right temperature at all times with very little attention, and the temperature is just the same all over the room.

We certainly appreciate the new heating System.

Yours very truly,

E. E. DeHart, Prop.,  
The Farmers' Store,

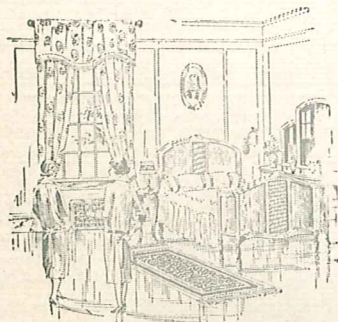
Weatherby, Mo.

Approved by



• TRADE MARK •

NATIONAL FURNACES ARE GREAT  
FUEL-SAVERS





# NATIONAL STOVES, RANGES AND FURNACES



## Cycloidal National Unit Furnace

### B SERIES

### For Coke, Coal, Wood, Gas and Oil

Number		Heating Capacity in 1,000 Cu. Feet	Total Height	Shipping Weight	*Price
21-44B	With Casing and Oxidized Register Face, 35x35 inches..	22-30	7½ feet	1900 lbs.	\$.....
24-48B	With Casing and Oxidized Register Face, 40x40 inches..	30-40	7½ feet	2170 lbs.	.....
27-51B	With Casing and Oxidized Register Face, 45x45 inches..	40-50	8 feet	2550 lbs.	.....
Additional height, per inch, extra.....					.....
New Sheer Temperature Control.....					.....

\*Price does not include smoke pipe or double-tee joint.

Sizes warm-air outlet pipe: No. 21 pipe, 26 inches; No. 24 pipe, 30 inches; No. 27 pipe, 36 inches.

Sizes cold-air pipes: No. 21 pipe, 10x20 inches; No. 24 pipe, 12x20 inches; No. 27 pipe, 14x24 inches.

## Description

Furnaces cased in such manner that all warm air generated by the furnace is discharged out of a single register have become popular during the last few years. This form of installation is practical only when the conditions are favorable.

This system is successful in modern homes that are built with folding doors, or "cased-door openings" between several of the rooms in a residence. Rooms on second floor may also be heated provided there is a hall on first and second floors to permit the warm air to flow to the second-floor rooms. In the absence of a hall, the second-floor rooms may be heated by placing registers in the ceiling, thereby connecting the first- and second-floor rooms.

This unit system of heating contemplates the doors between the several rooms are to be left open at all times, since the principle involved in heating an entire residence from one central point of supply means merely the residence be put into one undivided space; therefore, the more nearly this condition can be brought about, the more equal temperature may be expected in the various rooms. While it is impossible to heat all the space in a residence which is subdivided into rooms to the same degree of temperature, if the door openings that separate the rooms are of ample size, there will be a very slight difference indicated in the rooms on the first floor, and since the second-floor rooms are invariably used as sleeping apartments, which do not require above 60 degrees of temperature, this system will render satisfactory service. **For churches, auditoriums, etc., no better method of heating can be recommended.**

Our sales on NATIONAL UNIT FURNACES have all been successful, which, we believe, is due to our form of structure, particularly our improved method of cold-air supply.

It is a well-known fact that cold air is the motive power which forces the warm air out of the casing; therefore, the air should be delivered to the bottom of the casing in a cool state. Our system of cold-air supply does not pre-heat the air. The cold air entering the assembly box around the warm-air pipe is not detained; it passes down the two-side ducts to the bottom of the casing, where it enters, and has the greatest efficiency to push the warm air into the rooms above.

There is no furnace on the market so well adapted for the unit system as our CYCLOIDAL NATIONAL and is guaranteed to do the work as indicated above.

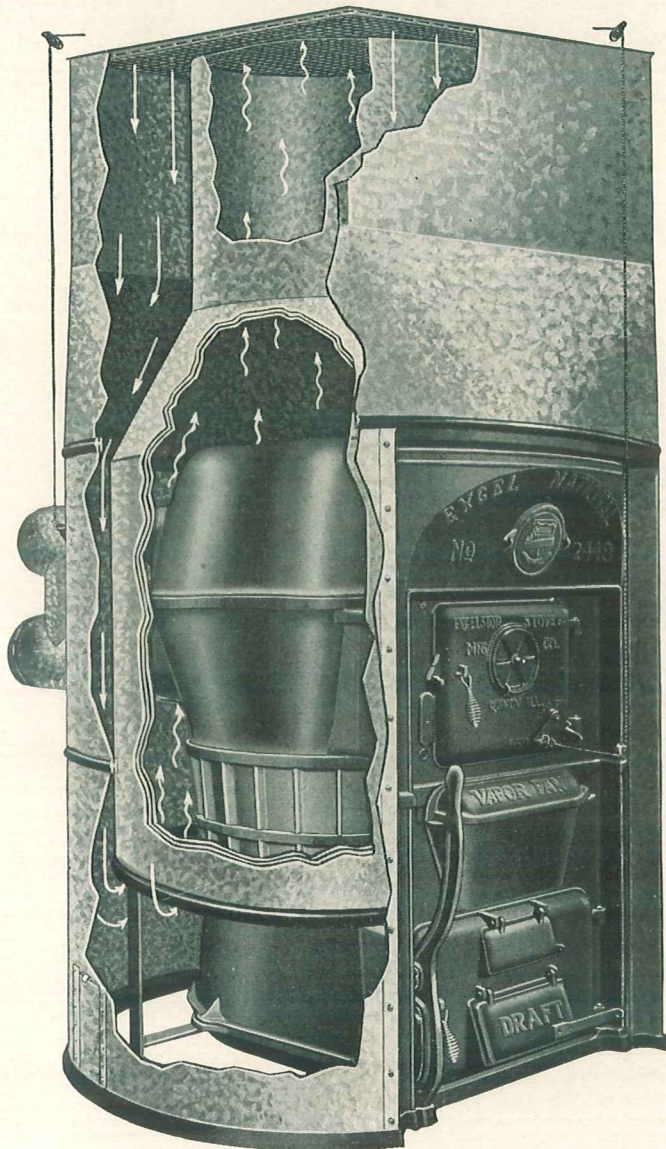
NATIONAL FURNACES ALWAYS  
SATISFY







# EXCELSIOR STOVE & MANUFACTURING COMPANY



Open View

Approved by



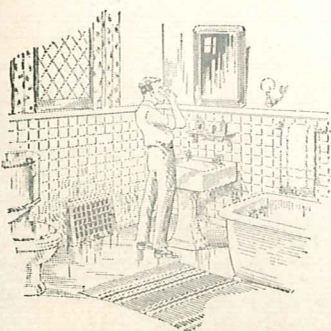
• TRADE MARK •

## Excel National Pipeless Furnace For Coke, Coal, Wood and Oil

Showing Construction of Casing and Warm- and Cold-Air Circulation

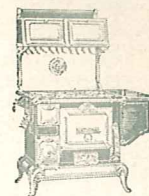
For Detail, See Pages 15 to 18 and 31

NATIONAL FURNACES ARE GREAT  
FUEL-SAVERS





# NATIONAL STOVES, RANGES AND FURNACES



## Excel National Pipeless Furnace

### Detail

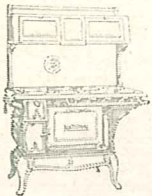
Number of Furnace.....	18-46	20-48	22-52	24-56
Diameter Top of Fire Pot.....Inches	18	20	22	24
Depth of Fire Pot to Grate.....Inches	11	12	13	14
Diameter of Combustion Chamber, over all.....Inches	25½	29	31½	33
Diameter of Combustion Chamber, inside.....Inches	23	27	28½	30
Diameter of Casing, inside.....Inches	38	40	44	48
Diameter of Casing, outside.....Inches	46	48	52	56
Height Main Front Casting.....Inches	44¾	46	48	50
Height of Castings, over all.....Inches	41	46	51	52¾
Size Feed-Door Opening.....Inches	9½x12	9½x12	11x14	11x14
Size Ash-Door Opening.....Inches	10x15½	10x15½	11½x18½	11½x20
Size Smoke Collar.....Inches	8	8	8	8
Size Water Coil for Range Boiler.....Inches	1	1	1	1
Size Vapor Pan.....Quarts	8	8	8	8
Size Register Face.....Inches	28x28	33x33	36x36	40x40
Size Warm-Air Pipe.....Inches	22	24	28	30
Area Grate Surface.....Square Inches	227	283	346	415
Height Bottom of Furnace to Register Face.....Inches	96	96	96	96
Height can be reduced to.....Inches	72	72	72	72
Heating Capacity in 1,000 Cubic Feet.....	10-14	14-20	20-26	26-35
Shipping Weight.....Pounds	948	1104	1303	1428
Price with Casing and B. J. Register Face.....\$				
Oxidized Copper Register Face.....Extra				
For Triangular Bar Grate instead of Cone Grate, add.....				
Mounted with Ball-Bearing, Cone-Center Grate unless otherwise ordered.....				
Additional Height Casing, per inch.....Extra				
1 to 6 inches.....				
7 to 12 inches.....				
13 to 18 inches.....				
19 to 24 inches.....				
Wood Grate.....Extra				
New Sheer Temperature Control.....Extra				

Double-tee joint, page 18.

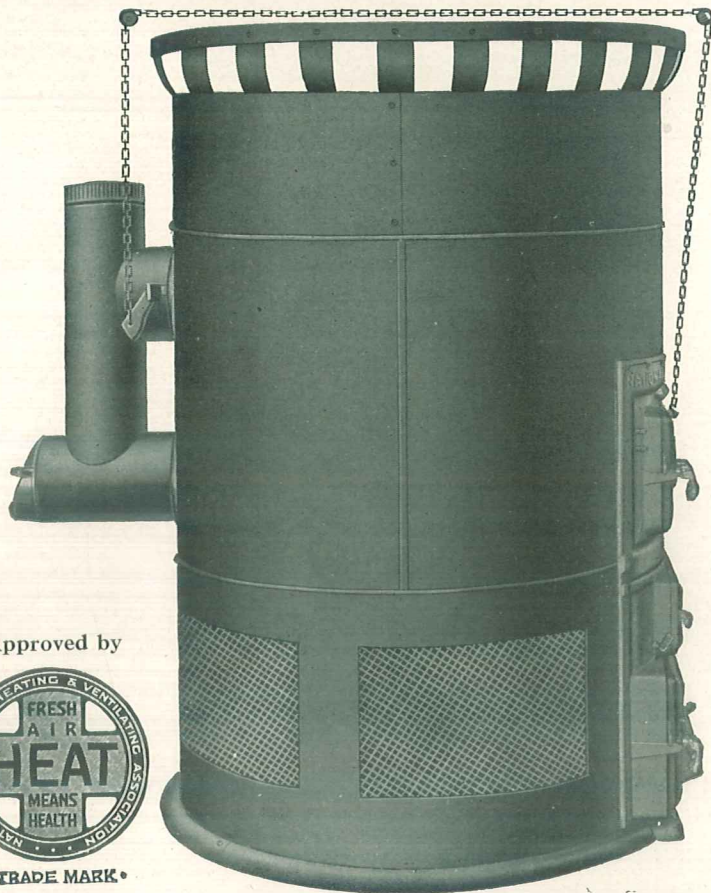
NATIONAL FURNACES ALWAYS  
SATISFY







# EXCELSIOR STOVE & MANUFACTURING COMPANY



Approved by



• TRADE MARK •

## Cycloidal National Furnace Room Heater

**For Coke, Coal, Wood,  
Gas and Oil**

This is our regular CYCLOIDAL NATIONAL FURNACE encased as a room heater. The casing is made of polished blue steel; the lower section is provided with very large panels of steel fretwork to admit the air of the room for circulation, and allow heat to escape through the fretwork, sufficient to warm a person standing close to the heater.

The top is open for the heat to discharge in large volume. It circulates the air of the room, warming the entire room uniformly from end to end.

Adaptable for heating warehouses, depots, stores, churches, auditoriums, garages, and all buildings where the heater must be placed within the space to be heated, no basement being available for a furnace.

We recommend the heater to be placed on a two-inch thick concrete base, or on the floor covered with two thicknesses of asbestos paper and sheet-iron covering.

### DETAIL - R SERIES

Number of Heater.....	21-44R	24-48R	27-51R
Diameter Top of Fire Pot.....Inches	21	24	27
Depth of Fire Pot to Grate.....Inches	13 1/2	14 1/2	16
Diameter of Combustion Chamber, inside.....Inches	25 1/2	28 3/4	32
Diameter of Combustion Chamber, outside, over all.....Inches	34	37	40
Diameter of Casing.....Inches	44	48	51
Height Single Casing.....Inches	65	69	74
Height of Castings.....Inches	51 1/2	55 1/2	61
Size Feed-Door Opening.....Inches	9 1/2 x 14	10 1/4 x 14	10 1/4 x 14
Size Ash-Door Opening.....Inches	11 x 18 3/4	11 3/4 x 21	13 1/2 x 24
Size Smoke Collar.....Inches	9	9	9
Size Water Coil Pipe for Range Boiler.....Inches	1	1	1
Size Evaporating Pan.....Quarts	8	8	8
Area Grate Surface.....Square Inches	314	418	551
Area Radiating Surface.....Square Feet	45.64	57.04	71.3
Heating Capacity in 1,000 Cubic Feet.....	28-38	38-50	50-62
Shipping Weight Heater with Casing.....Pounds	1560	1780	2100
Heater Priced with Casing and Double-Tee Joint.....Each	\$.....	\$.....	\$.....
New Sheer Temperature Control.....Extra			

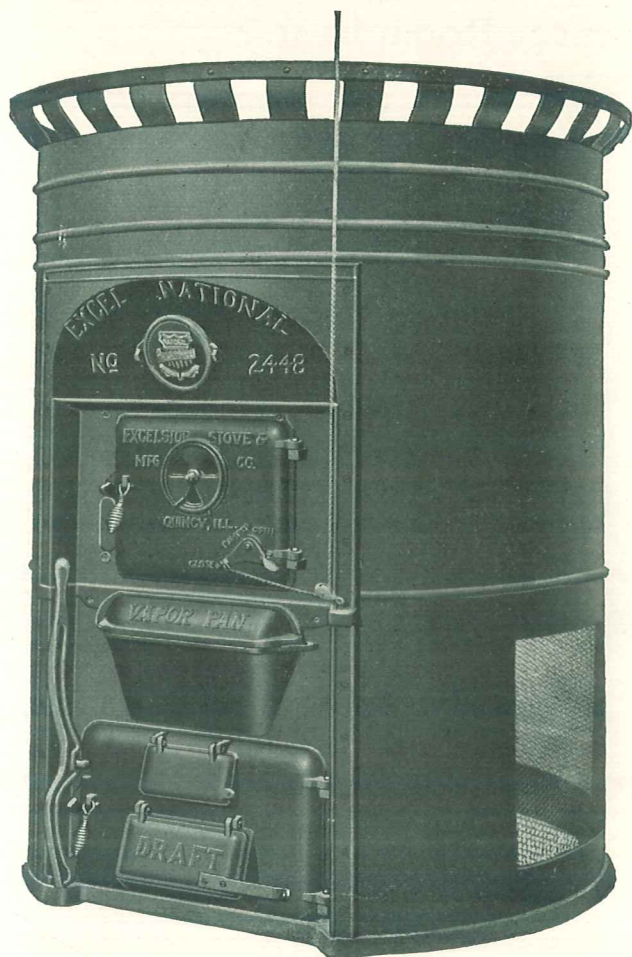
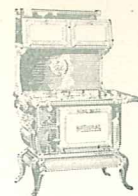
**Note**—Special fire pot for hard coal can be furnished.  
See further illustration of these heaters on pages 4 to 12.

**NATIONAL ROOM HEATERS ARE  
GREAT FUEL - SAVERS**





# NATIONAL STOVES, RANGES AND FURNACES



## Excel National Furnace Room Heater

R SERIES

For Coke, Coal, Wood and Oil

This is our EXCEL NATIONAL FURNACE encased as a room heater. The casing is made of polished blue steel; the lower section is provided with very large panels of steel fretwork to admit the air of the room for circulation, and allowing additional heat to escape through fretwork for direct heating.

The top of casing is open, permitting the heat to discharge at top in large volume, with no friction to retard the free flow of warm air, which circulates the air of the room, heating it uniformly throughout.

Adaptable for heating warehouses, depots, store-rooms, schools, churches, auditoriums, garages and all buildings where no basement is available for warm-air furnace.

We recommend the heater be placed on a concrete or brick base at least two inches thick, or on the floor, covered with two thicknesses of asbestos paper and covered with heavy sheet-iron.

The EXCEL NATIONAL ROOM HEATER can also be made with a special casing to be used for heating school-rooms, where fresh air must be taken from outside of the building, and also from inside of school-room.

A 14½x18-inch collar can be placed in either side or rear of lower casing to attach our No. 25 Fresh-Air Duct. The available space in lower casing will then be provided with openings of fretwork to admit air from the inside of school-room. When heater is wanted with collar openings, say if wanted on right, left or back.

The EXCEL NATIONAL FURNACE ROOM HEATER is a most powerful portable heating device consuming only a minimum amount of fuel.

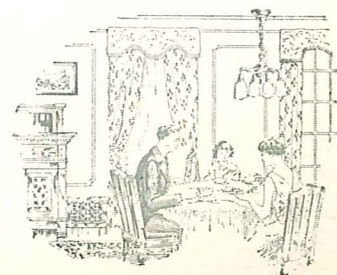
### Detail

Number of Heater.....	18-38R	20-40R	22-44R	24-48R
Diameter Top of Fire Pot.....Inches	18	20	22	24
Depth of Fire Pot to Grate.....Inches	11	12	13	14
Diameter of Combustion Chamber, over all.....Inches	25½	29	31½	33
Diameter of Combustion Chamber, inside.....Inches	23	27	28½	30
Diameter of Casing.....Inches	38	40	44	48
Height Single Casing.....Inches	58½	60	62	64
Height Castings.....Inches	41	46	51	52¾
Size Feed-Door Opening.....Inches	9½x12	9½x12	11x14	11x14
Size Ash-Door Opening.....Inches	10x15½	10x15½	11½x18½	11½x20
Size Smoke Collar.....Inches	8	8	8	8
Size Water Coil Pipe for Range Boiler.....Inches	1	1	1	1
Size Vapor Pan.....Quarts	8	8	8	8
Area Grate Surface.....Square Inches	227	283	346	415
Heating Capacity in 1,000 Cubic Feet.....	12-17	17-25	25-30	30-40
Shipping Weight with Casing and Tee Joint.....Pounds	750	900	1000	1200

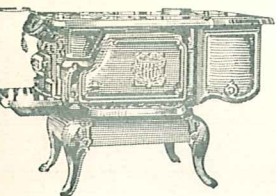
  

	18-38R	20-40R	22-44R	24-48R
For Triangular Bar Grate instead of Cone-Center Grate, add \$.....	\$.....	\$.....	\$.....	\$.....
Mounted with Ball Bearing, Cone-Center Grate unless otherwise ordered.....				
Heater priced with Casing and Tee Joint.....				
Wood Grate.....Extra				
New Sheer Temperature Control.....Extra				

See further illustrations of these heaters on pages 13 to 18.

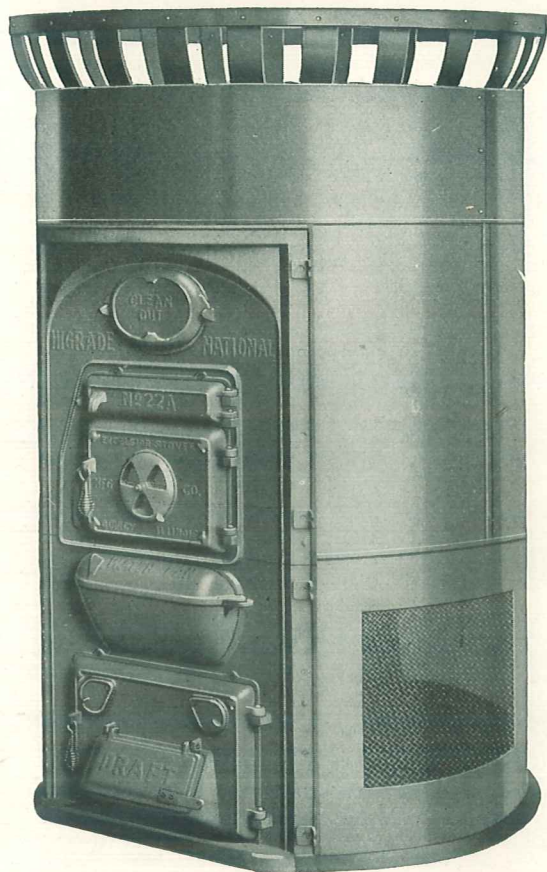






# EXCELSIOR STOVE & MANUFACTURING COMPANY

## Higrade National Furnace Room Heater



R SERIES

**For Coke, Coal, Wood  
and Oil**

This is our regular HIGRADE NATIONAL FURNACE cased as a room heater. The casing is made of polished blue steel; the lower section is provided with very large panels of steel fretwork to admit the air of the room for circulation, and allow heat to escape through the fretwork, sufficient to warm a person standing close to the heater.

The top is open for the heat to discharge in large volume. It circulates the air of the room, warming the entire room uniformly from end to end.

Adaptable for heating warehouses, depots, stores, churches, auditoriums, garages, and all buildings where the heater must be placed within the space to be heated, no basement being available for a furnace.

We recommend the heater to be placed on a two-inch thick concrete base, or on the floor covered with  $\frac{1}{4}$ -inch thickness of asbestos paper and sheet-iron covering.

### Detail

Number of Heater.....	20R	22R	24R	26R	28R
Diameter Top of Fire Pot.....Inches	19	21½	22½	24	27¼
Depth of Fire Pot to Grate.....Inches	11	12	13	14	14
Diameter of Radiator.....Inches	29	30½	32½	35½	37½
Diameter of Casing.....Inches	38	41	44	48	52
Height Casing.....Inches	60	65	65	66	66
Size Feed-Door Opening.....Inches	10½x10½	12¼x12¼	13x14	13x14½	13x14½
Size Ash-Door Opening.....Inches	10½x16	10½x16¾	11½x18½	12x20¼	12x20¼
Size Smoke Collar.....Inches	8	8	8	9	9
Size Water Coil Pipe for Range Boiler.....Inches	1	1	1	1	1
Size Evaporating Pan.....Quarts	8	10	10	10	10
Heating Capacity, 1,000 Cubic Feet.....	15-20	20-28	28-38	38-50	50-58
Shipping Weight.....Pounds	975	1150	1325	1425	1525
Price with Casing.....	\$.....	\$.....	\$.....	\$.....	\$.....
New Sheer Temperature Control.....Extra					

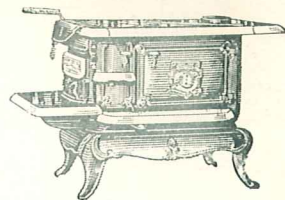
Can be furnished with wood-burning grate if desired. See further description of the heaters, pages 19 to 22.



**NATIONAL ROOM HEATERS ALWAYS  
SATISFY**



# NATIONAL STOVES, RANGES AND FURNACES

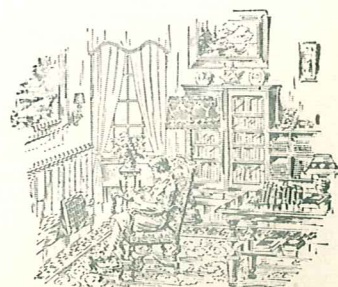


## Installation of National Room Air Heater in a School Room



The above cut shows a NATIONAL ROOM AIR HEATER in use in a school-room. Note particularly how close the pupils are seated to the heater with no overheating or uncomfortable drafts for any of the pupils. Our system of three wall casing permits these conditions. The heater is placed in a corner of the room out of the way and heats the entire room a uniform temperature.

NATIONAL ROOM HEATERS ARE  
GREAT FUEL-SAVERS







# EXCELSIOR STOVE & MANUFACTURING COMPANY

## National Room Air Heater

STYLE "A" AND "G" SERIES

Style "A" used where no ventilation is required. Style "G" used where ventilation is required.

### For Hard Coal, Soft Coal, Wood or Natural Gas

This heater is designed especially to provide all the requirements for perfection in heating and ventilating school-rooms, churches, auditoriums, etc., and to provide an apparatus that will obtain all the heat units from the fuel consumed, in a convenient and sanitary manner.

The necessity for proper heating and ventilating school-rooms is too generally known to require a lengthy argument here. It has been recognized to the extent that a great number of books have been written on the subject, pointing out the necessity for properly heating and ventilating buildings in which large numbers of people are housed. Many states have passed laws making it compulsory to educate our children under sane and sanitary conditions, which means that certain methods must be complied with to effectually prevent contagious and other ills due to the breathing of impure air.

An apparatus, therefore, to perform the necessary functions must provide:

**1st—Fresh Air** to be admitted in a sufficient volume that will supply 1,800 cubic feet of fresh air per hour for each pupil in school-rooms.

**2nd—Ventilation.** An outlet for the cold and foul air that will change the air inside the room four to six times per hour.

**3rd—Circulation** of the inside air to the end that the school-room will be heated uniformly even to the remotest corners.

**4th—Protection** by a complete casing of the heating apparatus that will permit pupils to sit in close proximity to the heater without being uncomfortable.

**5th—Cleanliness.** A heater provided with large and convenient feed doors to prevent spilling the fuel over the floor; also an ash pan which permits the removal of ashes without the cloud of dust always present when shoveling out the ashes.

The above are the qualifications necessary as prescribed by the state legislatures. The questions of apparatus not covered by law and equally important to the school board, namely, to obtain a heater that will heat up to the requirements, that will be durable and not necessitate constant repairing, that will be economical in fuel consumption, moderate in price and easily operated, should be given full and careful consideration.

## The National Room Air Heater

satisfactorily meets all the above points, and may be better judged from its structural features.

### Fuel Economy

The NATIONAL ROOM AIR HEATER is built with special attention toward economy and perfect combustion of the fuel. This is accomplished in the arrangement of the draft inlet. The draft being admitted through the ash door in part, passes up through the grate; at the same time a portion of the draft rises up through a tube from the base into the blast ring at the top of the fire pot.

### Perfect Combustion

Perfect combustion of the fuel consists in the consumption of both the fixed carbon (coke) and the hydro-carbon (gases), which constitute the B. T. U. of the fuel available if supplied with the proper supply of oxygen (air) to the fuel while in a state of combustion. The draft through the grate forces the gases out of the fuel. The air from the blast ring makes these gases combustible, which are thoroughly consumed, leaving no black smoke or soot to pass out of the chimney, since black smoke is the manifestation of imperfect combustion.

### Grates

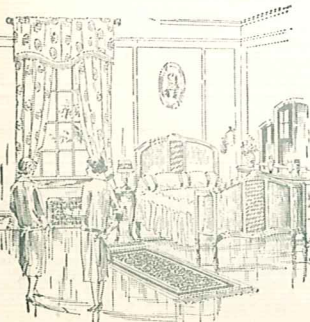
The coal grates consist of triangular bars, coupled together. These grate bars can be revolved with a grate shaker through the damper opening in the ash-pit door. By an ingenious construction, the grate shaker cannot be removed without leaving all the grate bars in a proper position. All of the bars of the grate have three surfaces exactly alike; therefore, either of the surfaces exposed to the fire is proper. After shaking the grate, a changed relation of the grate to the fire will occur, which equalizes the wear and makes the grate practically indestructible. The grates are removable through the ash-pit door, without taking the heater apart or removing a single bolt. We furnish a complete wood grate instead of the coal grate when wood exclusively is to be used.

### Fire Pot

The fire pot is corrugated and made very heavy. The sides are nearly straight and prevent the fire or ashes from resting on the pot, which adds many years to its durability.

### Blast Ring

The blast ring is made in sections, of heavy cast iron. These sections are loose and self-supporting, ample space for expansion is allowed, and are easily replaced. They also serve to prevent the coal coming into contact with the body. The functions of the blast ring are fully described under the caption of "Perfect Combustion".





# NATIONAL STOVES, RANGES AND FURNACES



## Body

The body of the NATIONAL ROOM AIR HEATER is made of cast iron, square-ribbed heavy construction, and is proportioned in its relation to the fire pot, which provides the correct amount of radiation, and combustion chamber. Analyzed gray iron is the only metal that will withstand the strain of soft coal, and is the most durable.

## Feed Doors

The feed doors are double; the lower door is intended for coal, while both doors may be opened to conveniently feed rough wood, or extra large chunks of coal.

## Check Damper

The check damper is located in the smoke pipe. It is regulated with a ratchet bar and serves to control the fire. By its use, the fire may be regulated to an even degree of heat, and since this damper is open most of the time, it adds materially toward ventilation of the room.

## Water Pan

Each heater is provided with a water pan, arranged into the casing with an outside swing cover for convenience in refilling. Water should be kept in the pan at all times. The evaporation being automatically regulated by the heat, the air absorbs the exact amount of moisture required to keep it in a healthful condition.

## Casings

These are made of sheet metal, coated with an anti-rust dull black finish and thoroughly asbestos-lined, with corrugated tin lining inside to protect the asbestos, making a three-wall casing, solid wrought-iron casing rings, that insure rigid construction. To mount the casings onto the heater, remove all door frames, bolt the bottom ring into place, then put on lower section of casing, then the solid ring, and next the upper casing. Bolt on the door frames the very last. Made so simple, any one can set up the heater complete with no more tools than an ordinary screwdriver.

## Air Circulation

The air space between the heater and casing—also the space between the heater and floor—are properly proportioned to circulate the air of the room without creating an unpleasant draft. All the air of the room except foul air is circulated and passes through the heater. This circulation draws the air from the remotest corners of the room toward the heater, and is replaced by warm air, insuring an even temperature throughout the entire room.

Circulation being perfect, does not require the heater to be placed in the center of the room; it may be placed in an out-of-way corner with equal success, thereby not interfering with clear space in the room.

Foul air being heavier than pure air, remains close to the floor; it does not circulate through the room again and again, if there is an opening for its escape to the open air; therefore, the necessity for the ventilating shafts to originate at the floor line.

## Chimney

The chimney flue for the NATIONAL AIR HEATER should be not less than 8x8 inches inside, and the smoke pipe from the heater to the chimney should be the same size as collar on heater. The ventilating flue should be of a size required by the various states.

Architects, when designing new school buildings, usually provide a special chimney which is surrounded by a ventilating stack, permitting every room to be connected to the ventilating stack.

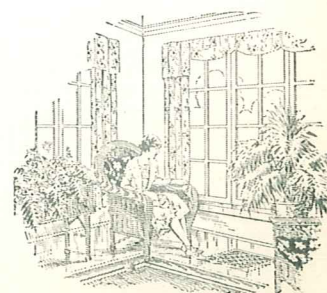
Old buildings not provided with ventilating systems may be successfully ventilated by either of the ventilating systems shown in this book in connection with the NATIONAL AIR HEATER.

## Simplicity

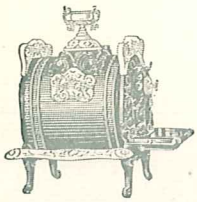
The NATIONAL AIR HEATER has been designed especially for simplicity in all its features. Any person with ordinary intelligence can install the heater and any of the ventilating systems without the aid of any special agent. We have eliminated all the mysteries from the apparatus and the usual charge made for same; therefore, our prices are below the so-called special houses and special heating engineers, since any one can install the NATIONAL, reference being made to the illustrations shown in this book.

In general, the NATIONAL ROOM AIR HEATER is the last word in the creation of a school-room heater. There are other heaters that will heat a room, but there are none with the refinements and structural features that insure the increased radiation, the durability, convenience, cleanliness and fuel economy that go with every NATIONAL.

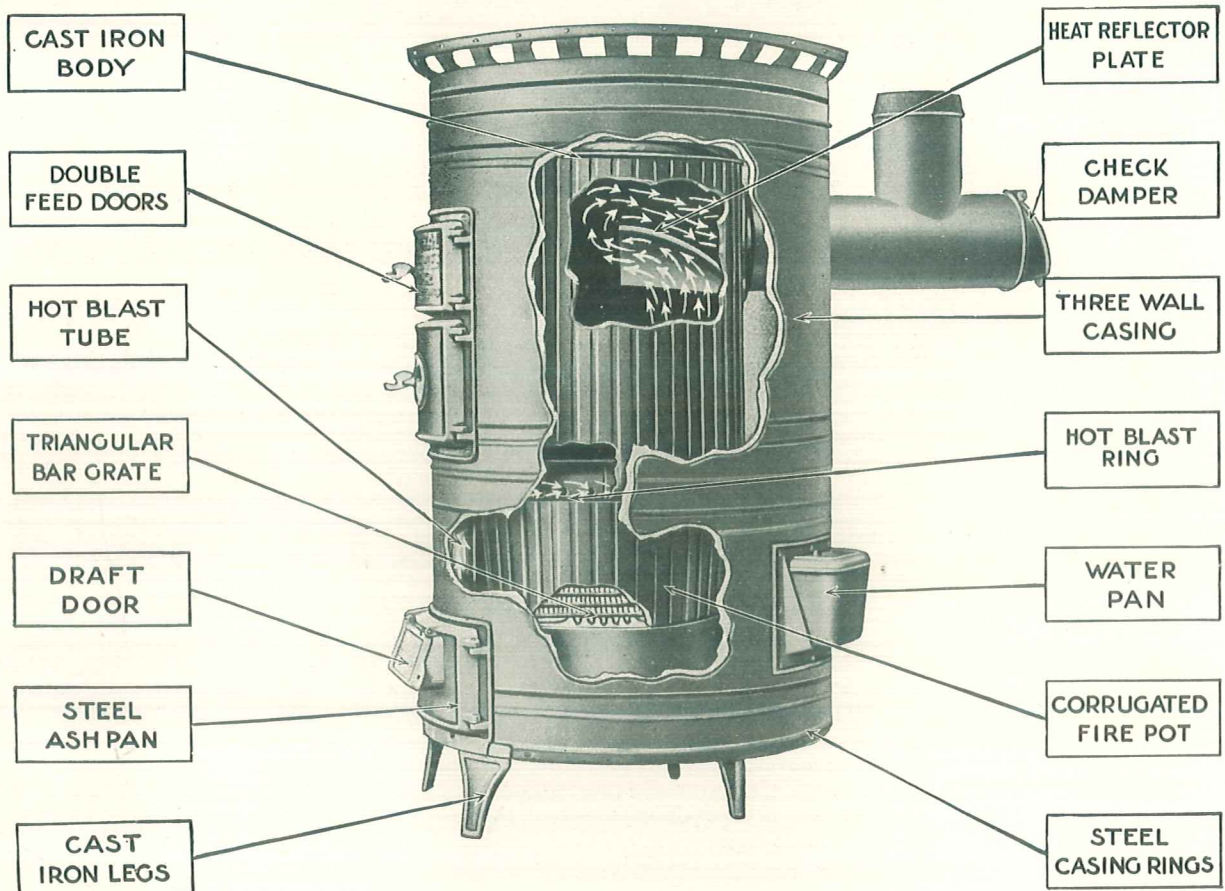
The NATIONAL is made in three sizes, capable of rendering the service as listed. If the space is larger than can be heated with one heater, we would strongly recommend that two heaters should be used instead of one over-size apparatus. The special advantage in using two heaters in a very large space consists in the fact that during the spring or fall season, or during moderate weather, one heater only may be put into use, thereby saving fuel; then, in very cold weather, both heaters may be fired, which produces a better distribution of the heat than can be obtained from one apparatus.







# EXCELSIOR STOVE & MANUFACTURING COMPANY



## National Room Air Heater

Showing 14 Superior Points of Construction

Thousands in Successful Operation

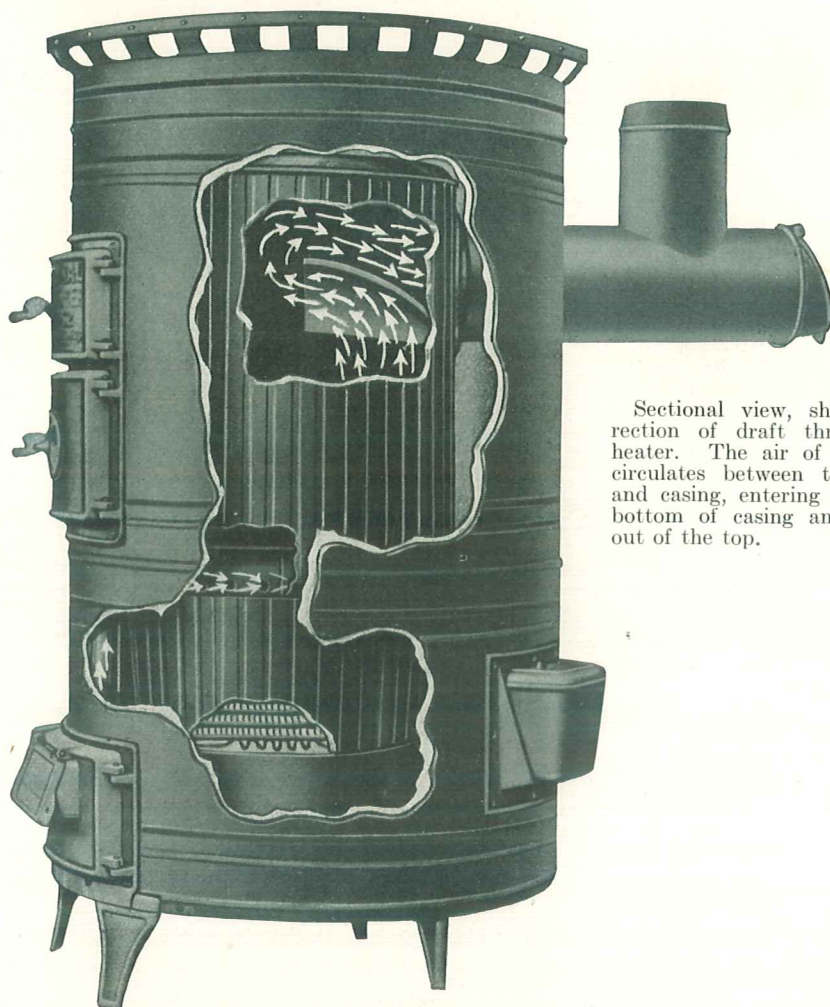
Meets the Requirements of State School Laws for  
Heating and Ventilating School-Rooms

NATIONAL ROOM HEATERS ARE  
GREAT FUEL-SAVERS





# NATIONAL STOVES, RANGES AND FURNACES



Sectional view, showing direction of draft through the heater. The air of the room circulates between the heater and casing, entering under the bottom of casing and passing out of the top.

## Style "A" National Room Air Heater For Hard Coal, Soft Coal, Coke, Wood or Natural Gas

### Specifications

Number.....	16-28A	18-30A	20-32A	22-36A
Diameter Top of Fire Pot.....Inches	16	18	20	22
Diameter of Body.....Inches	19½	21½	23½	23½
Diameter of Casing.....Inches	28	30	32	36
Height of Casing.....Inches	60½	60½	62½	65
Height from Floor to Top of Smoke Tee.....Inches	49½	51	52	53
Size Smoke Pipe.....Inches	7	8	8	8
Size Feed Door.....Inches	9x16½	11x16½	11x16½	11x15
Heating Capacity in Cubic Feet.....	9000	13000	16000	18000
Shipping Weight.....Pounds	400	500	565	750

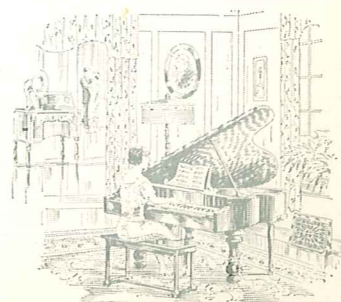
### Description, Pages 36 to 38. Prices (See Net Price List)

	16-28A	18-30A	20-32A
Style "A" for Coal, with Casing and Tee Joint.....	\$.....	\$.....	\$.....
Style "A" for Wood, with Casing and Tee Joint.....	.....	.....	.....
Style "A" for Coal and Wood, with Casing and Tee Joint.....	.....	.....	.....
New Sheer Temperature Control.....Extra	.....	.....	.....

Can Furnish a Special Grate for Burning Natural Gas if Desired. See Page 43.

Note—This heater has no provision for fresh-air intake from the outside. It is intended for stores, churches, garages, etc., where re-circulation of air is required.

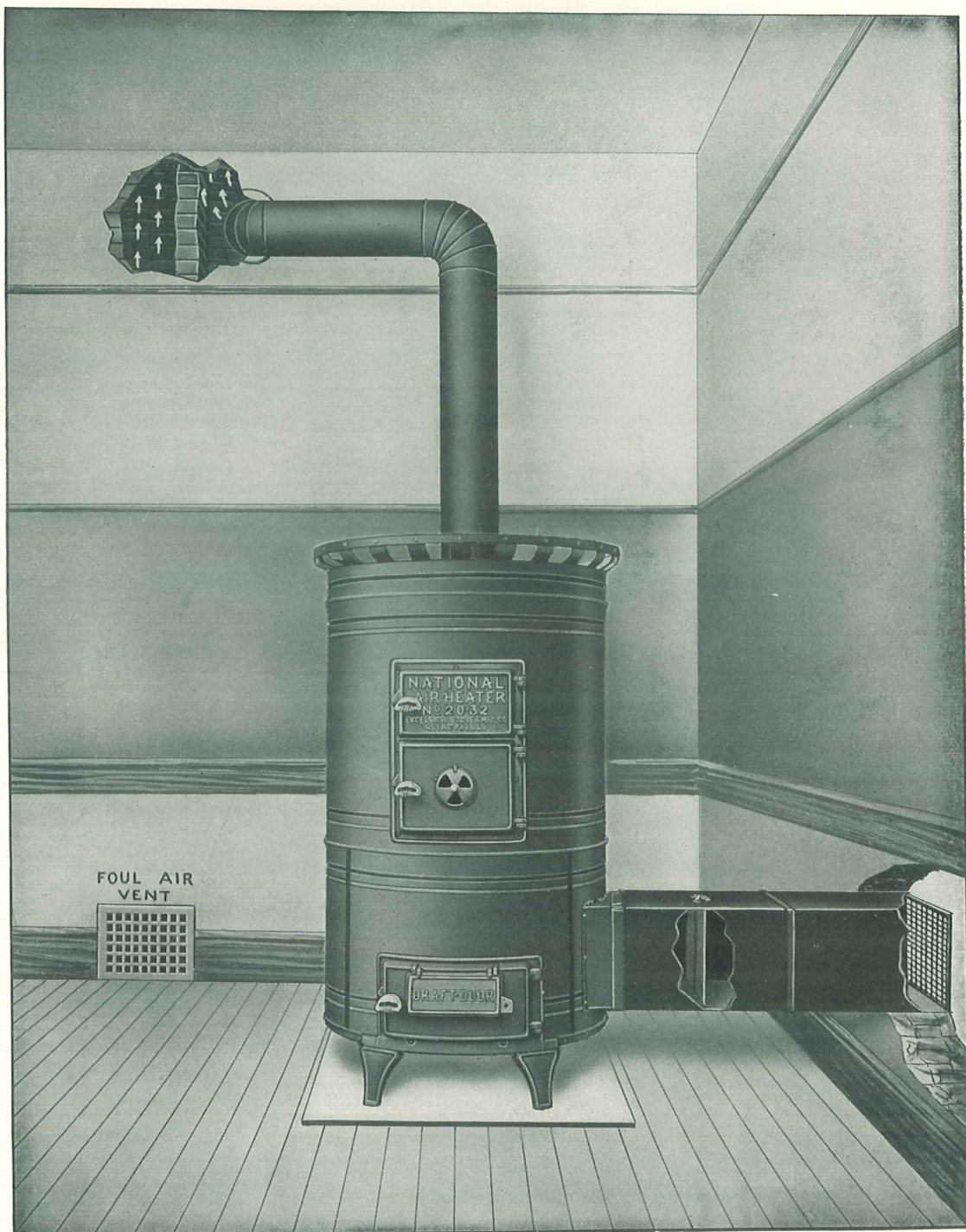
For this heater with fresh-air intake from outside, see Style "G" illustrated on following pages.







# EXCELSIOR STOVE & MANUFACTURING COMPANY



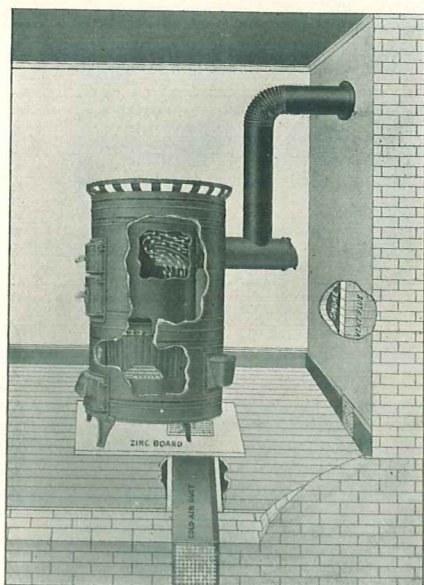
## Style "G" National School-Room Air Heater For Hard Coal, Soft Coal, Wood or Natural Gas

Interior View of this Heater same as Style "A", Page 39  
See Description, Pages 36 to 38-42 (Prices, See Net Price List)  
Can Furnish a Special Grate for Burning Natural Gas if Desired.  
See Page 43





# NATIONAL STOVES, RANGES AND FURNACES



Style A with No. 2 Ventilating System

## Materials for Ventilating System No. 2

Stove Board with Opening for Register.  
9x12 B. J. Register for Stoveboard.  
9x12 B. J. Register for Sidewall.  
Fresh Air Screen for Fresh Air Duct.

## Style "G" National School-Room Air Heater

This heater is made to cover the requirements of all state laws pertaining to the heating and ventilating of school-rooms, except the state of Texas which requires special equipment, and is shown on pages 46-47 and 48.

The "G" installation is shown complete on opposite page. The lower section of the casing is made in four sections, which permits the fresh-air intake duct to be used from either side or the rear. One section is equipped with a 14½x18-inch collar. No. 25 Fresh-Air Duct fits all sizes. Ventilation of the school-room is effected by the use of a chimney having two flues—one to be used for smoke, the other for the removal of foul air. For this purpose, a register is to be placed at the floor line and connected to the ventilating flue.

## Specifications

### STYLE "G"

Number.....	16-28G	18-30G	20-32G	22-36G
Diameter Top of Fire Pot.....Inches	16	18	20	22
Diameter of Body.....Inches	19½	21½	23½	23½
Diameter of Casing.....Inches	28	30	32	36
Height of Casing.....Inches	60½	60½	62½	65
Height from Floor to Top of Smoke Tee.....Inches	49½	51	52	53
Size Smoke Pipe.....Inches	7	8	8	8
Size Feed Door.....Inches	9x16½	11x16½	11x16½	11x15
Heating Capacity in Cubic Feet with Ventilation.....	8000	11000	14000	16000
Heating Capacity in Cubic Feet without Ventilation.....	9000	13000	16000	18000
Shipping Weight with Equipment.....Pounds	480	575	650	845

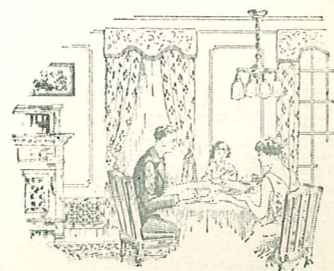
### See Net Price List

Style "G" for Coal, with Complete Equipment.....	\$.....	\$.....	\$.....
Style "G" for Wood, with Complete Equipment.....	.....	.....	.....
Style "G" for Coal or Wood, with Complete Equipment.....	.....	.....	.....
Natural-Gas Grate (see page 43).....Extra	.....	.....	.....
New Sheer Temperature Control.....Extra	.....	.....	.....

Price of "G" NATIONAL SCHOOL-ROOM AIR HEATER includes the following list of equipment (see page 42):

- 1 only 4-foot length Fresh-Air Duct with Damper, 14½x18 inches. No. 25
- 1 only No. 3 Screen for Fresh-Air Duct, 14½x18 inches.
- 1 only B. J. Register for Foul-Air Ventilating Stack, 9x12 or 14x20 inches.
- 1 No. 9 Stove Board, 33x39 inches.
- 6 feet 24-gauge Black-Iron Smoke Pipe, Nested.
- 1 only 24-gauge Black-Iron Adjustable Smoke-Pipe Elbow.
- 1 only Smoke-Pipe Collar.

NATIONAL ROOM HEATERS ARE  
DURABLE

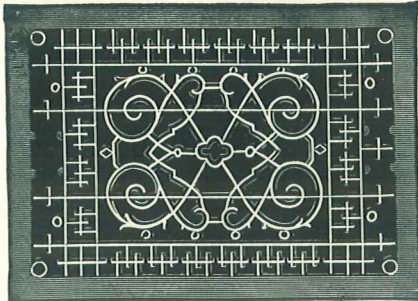






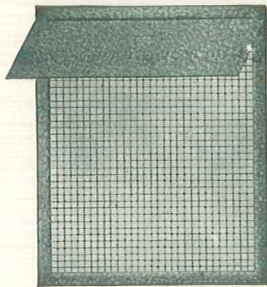
# EXCELSIOR STOVE & MANUFACTURING COMPANY

## Equipment for Style "G" National Room Air Heater



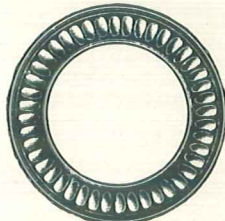
Registers—Black Japanned  
For Foul-Air Ventilating Flue

Size, 9x12 or 14x20, price.....\$.....



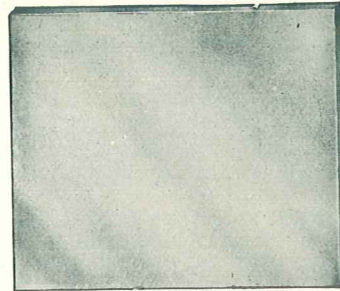
Fresh-Air Screen

Made of galvanized iron wire screen and edges.  
No. 3 Size, 14½x18-inch, each.....\$.....



Stove-Pipe Collar (Plain Pattern)

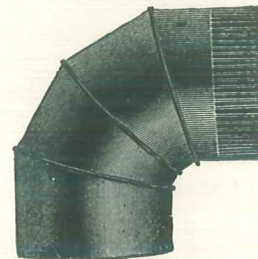
Size, 7-inch, for No. 16-28, each.....\$.....  
Size, 8-inch, for Nos. 18-30 and 20-32, each.....



No. 9 Stove Board

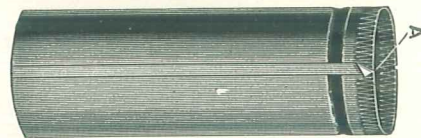
No. 9—Stove Board, each.....\$.....

These stove boards are made of heavy lumber and covered with galvanized iron. Size, 33x39-inch—large enough for all-size heaters.



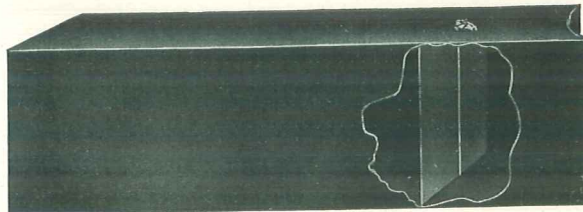
Smoke-Pipe Adjustable Elbow, 24-Gauge Black Iron

Size, 7-inch, for No. 16-28, each.....\$.....  
Size, 8-inch, for Nos. 18-30 and 20-32, each.....



Smoke-Pipe 24-Gauge Black Iron Nested

Size, 7-inch, for No. 16-28, per foot.....\$.....  
Size, 8-inch, for Nos. 18-30 and 20-32, per foot.....



No. 25 Fresh-Air Duct for Style "G" Heater  
Fits All Sizes "G" Series

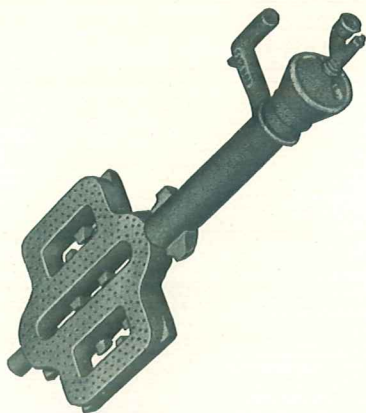
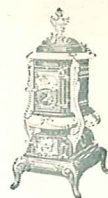
This Fresh Air Duct is arranged with a solid damper, operated by a quadrant that enables the operator to fasten the damper in an open, closed or intermediate position. It is made of sheet steel and with our double-folded joints is very easily installed.

Size 14½x18 inches, 4 feet long, including damper, each.....\$.....  
14½x18-inch pipe to increase length if desired, per foot.....

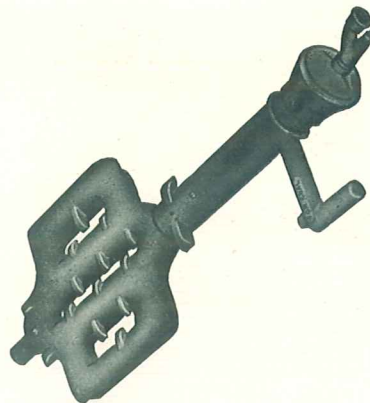




# NATIONAL STOVES, RANGES AND FURNACES

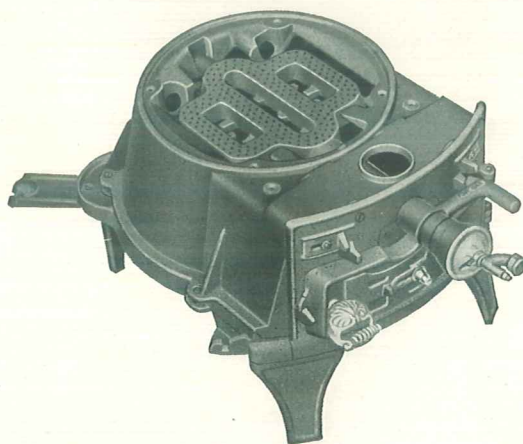


Gas Side



Coal Side

Combination coal and gas grates furnished for all sizes NATIONAL AIR HEATERS and NATROLA NATIONAL. The grate pivots on the exact center; one side up uses coal; the other side gas; merely turning it over changes it from one fuel to the other. When using gas, the fire pot should be filled with artificial fuel for the best results.



Showing Combination Coal and Gas Grate Attached for Styles A-G and Texas National Air Heaters

## Price of Combination Grate Instead of Regular Coal Grate

Add to Price on Heaters	Price
Size, 16-28.....	\$.....
Size, 18-30.....	.....
Size, 20-32.....	.....

Needle-Point Valve and Air-Mixer included in above price.

**National Stoves and Ranges  
Were Awarded  
the highest Prize, Gold Medal,  
World's Fair, 1904**







# EXCELSIOR STOVE & MANUFACTURING COMPANY

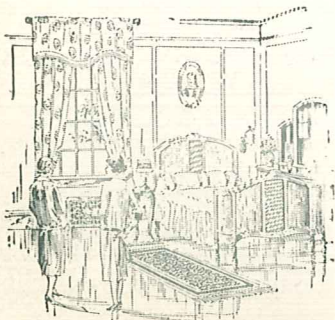
## National Room Air Heaters

Especially designed for heating and ventilating Store Rooms, Churches, Schools, Lodge Rooms, Garages and other buildings of large area.



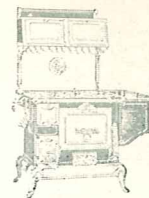
MANUAL TRAINING CLASS,  
JEFFERSON SCHOOL  
QUINCY, ILL.

The above illustration shows a National Room Air Heater, properly installed in the Manual Training Department of one of our city schools. Note particularly how close to heater pupils are working with no overheating or uncomfortable drafts. Our system of three wall casings permits this. Entire room is heated to a uniform temperature.





# NATIONAL STOVES, RANGES AND FURNACES



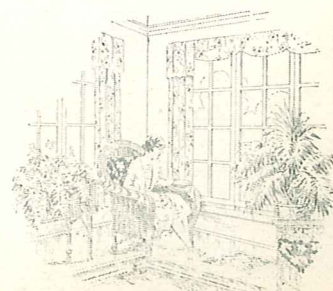
## National Room Air Heaters

Built especially for Store Rooms, Garages, Theatres, Schools, Lodge Rooms, Churches, in fact all places of large area, where heater must be installed in room to be heated.



MANUAL TRAINING  
CLASS,  
DEWEY SCHOOL  
QUINCY, ILL.

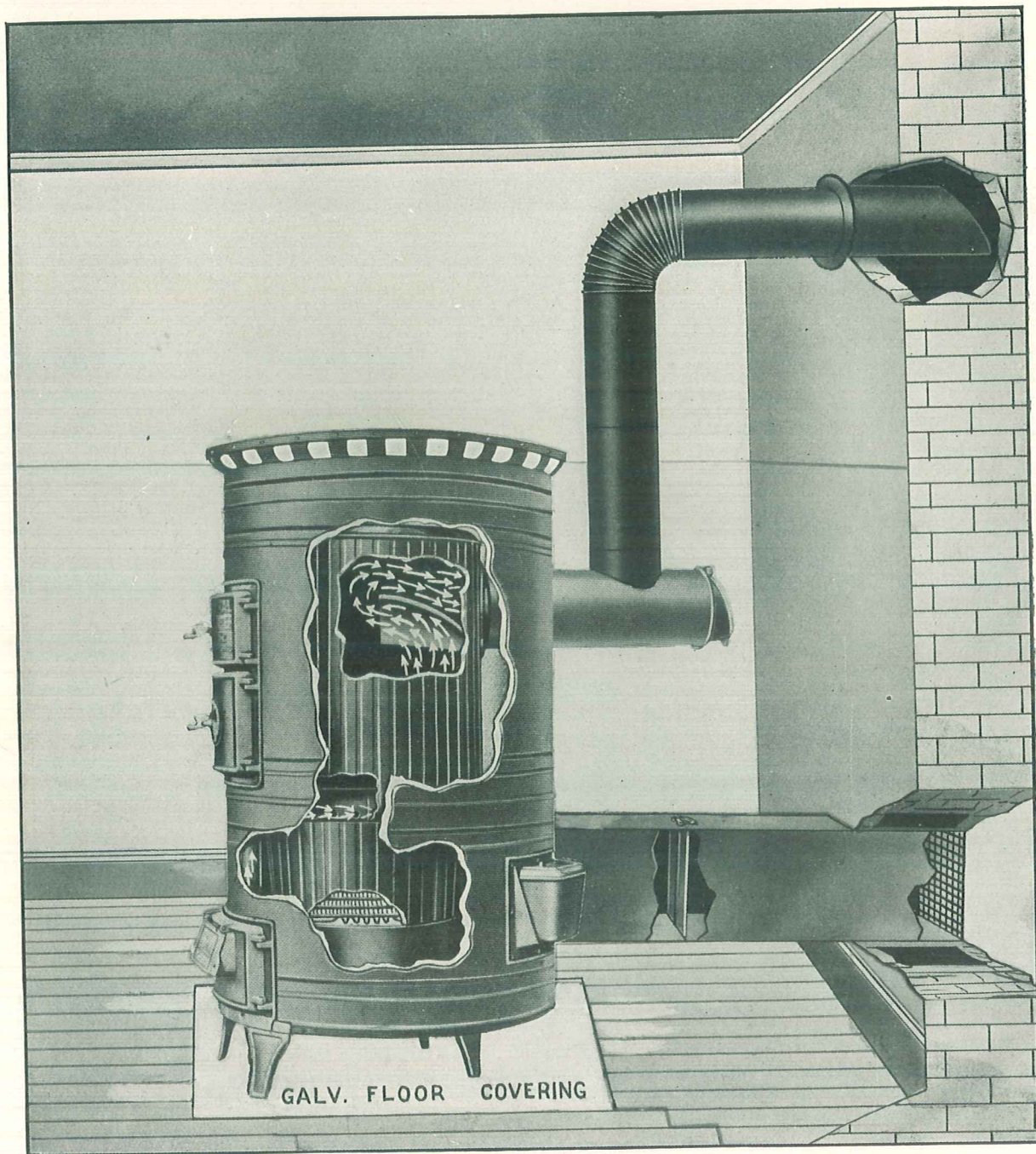
The accompanying illustration shows a National Room Air Heater installed in the Manual Training Department of another of our City Schools. Note particularly that heater is placed in a corner of the room, out of the way and heats entire room to a uniform temperature. Over 30,000 National Room Air Heaters are installed in schools alone throughout the country, and a constantly increasing business proves the popularity of the NATIONAL.







# EXCELSIOR STOVE & MANUFACTURING COMPANY

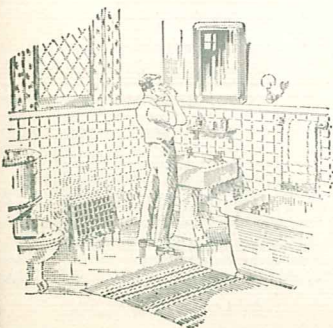


## Style "T" Texas National School-Room Air Heater

For Hard Coal, Soft Coal, Wood or Natural Gas

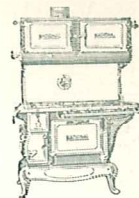
As Approved by the State Superintendent of Schools, Austin, Texas  
Published in the School Bulletin of Approved Heaters

Description, Pages 38, 47 and 48





# NATIONAL STOVES, RANGES AND FURNACES



## Style "T" Texas National School-Room Air Heater

In the illustration on opposite page, the chimney is cut away to show the arrangement of the fresh-air duct when attached to the rear of heater. The lower section of the casing is made in four parts, which permits placing the fresh-air duct on either side or rear, as the conditions may require. One of the four pieces contains the water pan which may also be placed in most convenient location.

The fresh-air duct is provided with a solid damper operated by a quadrant that permits locking the damper in any position. A galvanized-wire screen on outside of air duct with a rain guard attached prevents rain and debris entering the duct. A baffle plate on inside bottom of air duct extends inside the casing toward the fire pot and prevents the cold air falling to the floor.

The foul-air register is shown in bottom of chimney at the floor line; this register is provided with valves to close off the circulation when desired.

The smoke pipe is furnished with a mitre end for inside the chimney, which facilitates the draft.

The check damper on end of smoke-pipe tee is a very important part of the heater—it enables the operator to hold the fire under perfect control and provides the means for retaining the fire from one day to the next.

The body of the heater is made of cast iron.

The casing is made of polished steel and coated with a bronze-colored lacquer; it is thoroughly lined with asbestos sheathing and steel inner lining that lays close

against the asbestos, and prevents the asbestos from crumbling out.

Solid-steel casing rings make the casing strong and rigid. The crown is provided with loops to permit bolting it to the upper casing.

TEXAS NATIONAL AIR HEATER grate is made of triangular bars, which is the only form of grate construction that breaks up the clinker completely. The grate can be renewed without taking the heater apart or removing a single bolt.

The hot-blast ring above the fire pot is supplied with air from the ash pit, through the tube in front of the fire pot. This tube delivers air to the surface of the fire, making the gases combustible; therefore, the TEXAS NATIONAL AIR HEATER burns the smoke and soot natural to the use of soft coal.

Black smoke from the chimney is a manifestation of imperfect combustion.

Every TEXAS NATIONAL AIR HEATER is provided with an ash pan, which prevents the cloud of dust always present when removing ashes with a shovel.

The TEXAS NATIONAL AIR HEATER is made so simple that any one can install it as easily as setting up an ordinary stove.

There are other heaters that will heat a room, but there are none that have the convenience, refinements and durability of the TEXAS NATIONAL. Thousands in use.

## Specifications

### STYLE "T"

Number.....	16-28T	18-30T	20-32T	22-36T
Diameter Top of Fire Pot.....Inches	16	18	20	22
Diameter of Body.....Inches	19½	21½	23½	23½
Diameter of Casing.....Inches	28	30	32	36
Height of Casing.....Inches	60½	60½	62½	65
Height from Floor to Top of Smoke Tee.....Inches	49½	51	52	53
Size Smoke Pipe.....Inches	7	8	8	8
Size Feed Door.....Inches	9x16½	11x16½	11x16½	11x15
Heating Capacity in Cubic Feet with Ventilation.....	8000	11000	14000	16000
Heating Capacity in Cubic Feet without Ventilation.....	9000	13000	16000	18000
Shipping Weight with Full Equipment.....Pounds	480	575	650	845

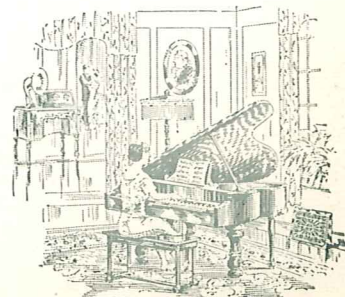
## Prices

### See Net Price List

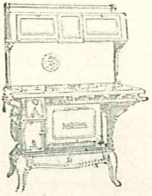
Style "T" for Coal, with Complete Equipment.....	\$.....	\$.....	\$.....
Style "T" for Wood, with Complete Equipment.....	.....	.....	.....
Style "T" for Coal or Wood, with Complete Equipment.....	.....	.....	.....
Natural Gas Grate (see page 43).....Extra	.....	.....	.....
New Sheer Temperature Control.....Extra	.....	.....	.....

Price of TEXAS NATIONAL SCHOOL-ROOM AIR HEATER includes the following list of equipment (see page 48):

- 1 only 4-foot length Fresh-Air Duct with Damper.
- 1 only Screen for Fresh-Air Duct.
- 1 only B. J. Register for Foul-Air Ventilation Stack.
- 1 Sheet 36x42-inch Galvanized Iron for Floor Covering.
- 6 feet 24-gauge Black-Iron Smoke Pipe, Nested.
- 1 only Mitre End for Smoke Pipe.
- 1 only 24-gauge Black-Iron Adjustable Smoke-Pipe Elbow.
- 1 only Smoke-Pipe Collar.



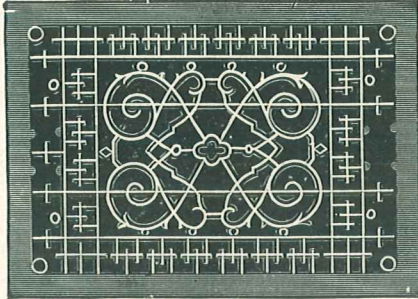




# EXCELSIOR STOVE & MANUFACTURING COMPANY

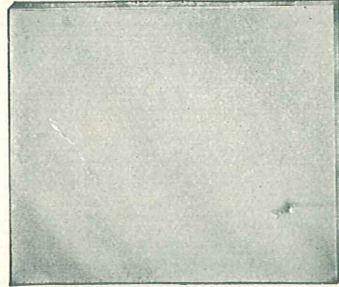
## Equipment for Style "T" Texas National School-Room Air Heater

The following prices apply if ordered separately from Heater:



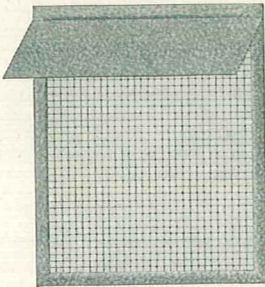
Register—Black Japanned

Size, 12x16, for Nos. 16-28 and 18-30, each.....\$.....  
Size, 12x20, for No. 20-32, each.....



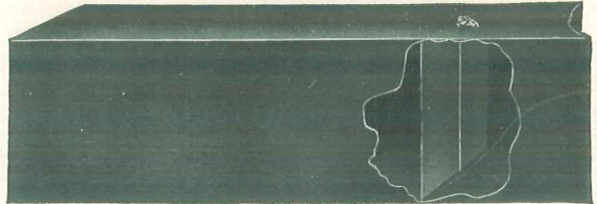
Galvanized-Iron Floor Covering

Size Sheet, 36x42, each.....\$.....



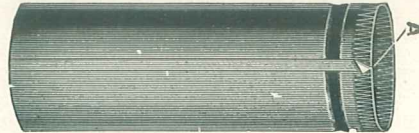
Fresh-Air Screen

Size, 12x12, for Nos. 16-28 and 18-30, each.....\$.....  
Size, 12x16, for No. 20-32, each.....



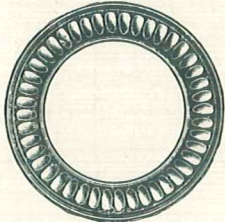
Texas Air Duct

Size, 12x12x4 ft., for Nos. 16-28 and 18-30, each \$.....  
Size, 12x16x4 ft. for No. 20-32, each.....



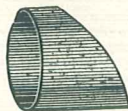
Smoke-Pipe, 24-Gauge Black Iron, Nested

Size, 7-inch, for No. 16-28, per joint.....\$.....  
Size, 8-inch, for Nos. 18-30 and 20-32, per joint.....



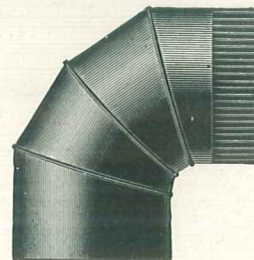
Stove-Pipe Collar (Plain Pattern)

Size, 7-inch, for No. 16-28, each.....\$.....  
Size, 8-inch, for Nos. 18-30 and 20-32, each.....



Stove-Pipe Mitre, 24-Gauge Black Iron

Size, 7-inch, for No. 16-28, each.....\$.....  
Size, 8-inch, for Nos. 18-30 and 20-32, each.....



Stove-Pipe Adjustable Elbow, 24-Gauge Black Iron

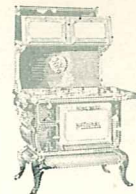
Size, 7-inch, for No. 16-28, each.....\$.....  
Size, 8-inch, for Nos. 18-30 and 20-32, each.....



NATIONAL ROOM HEATERS ARE  
GREAT FUEL-SAVERS



# NATIONAL STOVES, RANGES AND FURNACES



## Ventilating Stack

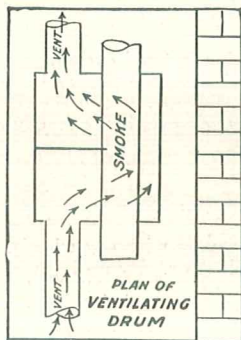
This cut shows the complete ventilating stack for our No. 1 System as it appears in the room.

The Vent Drum surrounds the smoke pipe, the heat from the smoke pipe within the drum warms the air, causing a draft that removes the cold and foul air out through the roof.

To complete this ventilating system requires the 10-inch pipe to be extended from the vent drum through the ceiling, attic and roof, terminating into our 10-inch Roof Saddle and 10-inch Ventilating Cap.



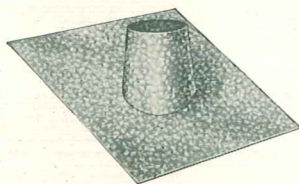
Ventilating Stack  
No. 1 System



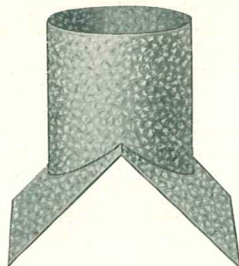
This cut shows the interior of the Ventilating Drum. Note the partition in the drum, that deflects the air around the smoke pipe, thereby heating it, which creates a rapid flow of air through the vent stack.

74-inch Section Vent Stack, size 10-inch, with Vent Drum, Damper and Base. Each, list.....\$.....  
10-inch Blue-Steel Pipe, per foot.....\$.....

NOTE—We quote the 10-inch pipe separate, since we do not know the height required to extend from the Vent Drum through the roof.



Side Saddle



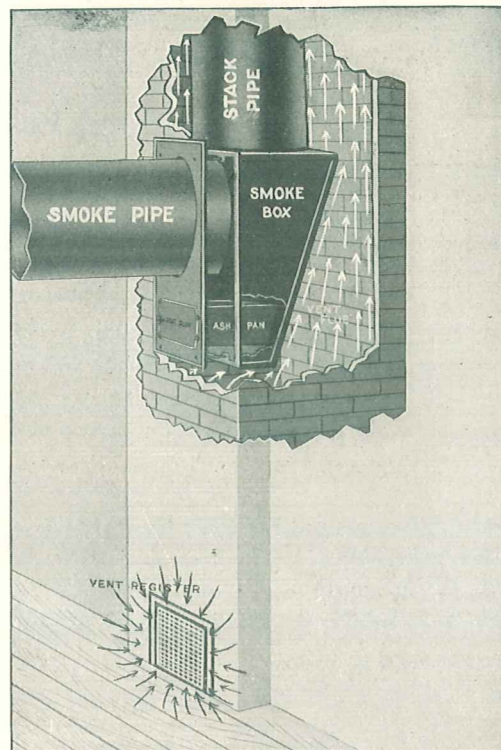
Top Saddle

## Roof Saddles

These Roof Saddles are made of galvanized iron and are intended for use with our No. 1 Ventilating System.

Size, 10-inch, for side or top. Price each.....\$.....

## Ventilating System No. 5



Combination Smoke and Ventilating Flue  
Detail of Construction

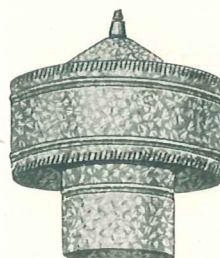
This shows an especially good arrangement for school-room ventilation consisting of a brick stack, the inside opening being not less than the size specified by your state law. The smoke box is made of cast iron with cast-iron wall plate and opening to remove the ash pan.

The wall plate is bolted to the smoke box which clamps them both permanently to the wall of the stack.

The stack pipe rests upon the smoke box and should be extended to the top of the vent stack. The heat from the stack pipe rarefies the air in the stack and creates a draft that draws the cold and foul air out of the room through the register placed in the stack at the floor line. All the rooms of a school may be ventilated into one stack of proper size.

### Price

Smoke box, wall plate and ash pan.....\$.....  
9-inch, 20-gauge galvanized stack pipe, per foot.....\$.....  
Pipe clamps to fasten stack pipe into brick, each.....\$.....



Size, 10 Inches

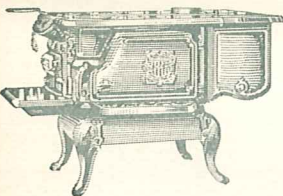
## Ventilating Caps

These Ventilating Caps are made of galvanized iron and are intended for use with our No. 1 Ventilating system.

Size, 10 inches. Price, each \$.....







# EXCELSIOR STOVE & MANUFACTURING COMPANY

## Excelsior National Hot-Blast Room Heater

THE EXCELSIOR NATIONAL HOT-BLAST ROOM HEATER is designed especially to provide all the requirements for perfection in heating and ventilating school rooms, churches, auditoriums, etc., and provide an apparatus that will deliver all the heat units from the fuel consumed, in a convenient and sanitary manner.

### Fuel Economy

THE EXCELSIOR NATIONAL HOT-BLAST ROOM HEATER is built with special attention toward economy and perfect combustion of fuel. This is accomplished in the arrangement of the draft inlet. The draft being admitted through the front below the feed door; where it enters the blast ring direct. This method supplies the fuel with the greatest amount of oxygen and thoroughly consumes the escaping smoke and gases.

### Perfect Combustion

Perfect combustion of the fuel consists in the consumption of both the fixed carbon (coke) and the hydro-carbon (gases), which constitute the B. T. U. of the fuel available if supplied with the proper supply of oxygen (air) to the fuel while in a state of combustion. The draft through the grate forces the gases out of the fuel. The air from the blast ring makes these gases combustible, which are thoroughly consumed, leaving no black smoke or soot to pass out of the chimney, since black smoke is the manifestation of imperfect combustion.

### Grates

The coal grates consist of four triangular bars, coupled together in pairs with cog wheels. These grate bars can be revolved with a grate shaker through the damper opening in the ash-pit door. By an ingenious construction, the grate shaker cannot be removed without leaving all the grate bars in a proper position. All the bars of the grate have three surfaces exactly alike; therefore, either of the surfaces exposed to the fire is proper. After shaking the grate, a changed relation of the grate to the fire will occur, which equalizes the wear and makes the grate practically indestructible. The grates are removable through the ash-pit door, without taking the heater apart or removing a single bolt. We furnish a complete wood grate instead of the coal grate when wood exclusively is to be used.

### Fire Pot

The fire pot is corrugated and made very heavy. The sides are nearly straight and prevent the fire or ashes from resting on the pot, which adds many years to its durability.

### Blast Ring

The blast ring is made in sections of heavy cast-iron. These sections are loose and self-supporting, ample space for expansion is allowed, and are easily replaced. They also serve to prevent the coal coming into contact with the body. The functions of the blast ring are fully described under the caption of Perfect Combustion.

### Body

The body of the EXCELSIOR NATIONAL HOT-BLAST ROOM HEATER is made of cast-iron, square-ribbed heavy construction and is proportioned in its relation to the fire pot which provides the correct amount of radiation and combustion chamber. Analyzed gray iron is the only metal that will withstand the strain of soft coal and is the most durable.

### Baffle Plate

THE EXCELSIOR NATIONAL HOT-BLAST ROOM HEATER is equipped with a bell-shaped baffle plate, located in main top and directly under the smoke-pipe collar. It is constructed with an open space at the top, and at an angle to permit any small ash accumulation to fall into the fire pot and is self-cleaning. It baffles the products of combustion, and prevents the heat from escaping through the smoke pipe which increases the heating capacity of the heater.

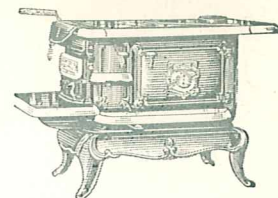
### Feed Door

Feed door is exceptionally large and fitted with a smoke curtain. Rough wood and large chunks of coal can be conveniently placed in the heater. The door is fitted with a suitable check damper and cold wire handle.





# NATIONAL STOVES, RANGES AND FURNACES



## Check Dampers

The heater is provided with two check dampers. One is located in feed door, and one directly over top of heater that connects with smoke pipe. Top check damper has two drop dampers, which can be operated at will and give the desired check to the fire. By the use of these dampers, an even degree of heat can be maintained, and since these dampers are open most of the time, they add materially toward the ventilation of the room.

## Water Pan

Each heater is provided with a water pan, arranged in the casing with an outside swing cover for convenience in refilling. Water should be kept in the pan at all times. The evaporation being automatically regulated by the heat, the air absorbs the exact amount of moisture required to keep it in a healthy condition.

## Casings

These are made of sheet metal, coated with anti-rust dull black finish and thoroughly asbestos-lined, with steel inner lining inside to protect the asbestos, making a three-wall casing, solid wrought-iron casing rings, that insure rigid construction. To mount the casings onto the heater, remove all door frames, bolt the bottom ring into place; then put on lower section of casing; then the solid ring, and next the upper casing. Bolt on the door frames the very last. Made so simple, any one can set up the heater complete with no more tools than an ordinary screw driver.

## Air Circulation

The air space between the heater and casing; also the space between the heater and floor, are properly proportioned to circulate the air of the room without creating an unpleasant draft. All the air of the room except foul air is circulated and passes through the heater. This circulation draws the air from the remotest corners of the room toward the heater and is replaced by warm air, insuring an even temperature throughout the entire room.

Circulation being perfect, does not require the heater to be placed in the center of the room; it may be placed in an out-of-the-way corner with equal success, thereby not interfering with clear space in the room.

Foul air being heavier than pure air, remains close to the floor; it does not circulate through the room again and again, if there is an opening for its escape to the open air; therefore, the necessity for the ventilating shafts to originate at the floor line.

## Chimney

The chimney flue for the EXCELSIOR NATIONAL HOT-BLAST ROOM HEATER should not be less than 8x8 inches inside, and the smoke pipe from the heater to the chimney should be the same as collar on heater. The ventilating flue should be of a size required by the various states.

Architects, when designing new school buildings, usually provide a special chimney which is surrounded by a ventilating stack, permitting every room to be connected to the ventilating stack.

## Simplicity

THE EXCELSIOR NATIONAL HOT-BLAST ROOM HEATER has been designed especially for simplicity in all its features. Any person with ordinary intelligence can install the heater and any of the ventilating systems, without the aid of any special agent. We have eliminated all the mysteries from the apparatus and the usual charges made for same; therefore, our prices are below the so-called special houses and special heating engineers, since any one can install the EXCELSIOR NATIONAL.

In general, THE EXCELSIOR NATIONAL HOT-BLAST ROOM HEATER is the last word in the creation of a school-room heater. There are other heaters that will heat a room, but there are none with the refinements and structural features that insure the increased radiation, the durability, convenience, cleanliness and fuel economy that go with every EXCELSIOR NATIONAL.

THE EXCELSIOR NATIONAL HOT-BLAST is made in three sizes, capable of rendering the service as listed. If the space is larger than can be heated with one heater, we would strongly recommend that two heaters should be used instead of one over-size apparatus. The special advantage in using two heaters in a very large space consists in the fact that during the spring and fall seasons, or during moderate weather, one heater may be put into use, thereby saving fuel; then, in very cold weather, both heaters may be fired, which produces a better distribution of the heat than can be obtained from one apparatus.







# EXCELSIOR STOVE & MANUFACTURING COMPANY

In the illustration on other side the chimney is cut away, to show the arrangement of the fresh-air duct when attached to the rear of heater. The lower section of the casing is made in four parts, which permits placing the fresh-air duct on either side or rear, as the conditions may require. One of the four pieces contains the water pan which may also be placed in most convenient location.

The fresh-air duct is provided with a solid damper operated by a quadrant that permits locking the damper in any position. A galvanized wire screen on outside of air duct with a rain guard attached prevents rain and debris entering the duct. A baffle plate on inside bottom of air duct extends inside the casing toward the fire pot and prevents the cold air falling to the floor.

The foul-air register is shown in bottom of chimney at the floor line; this register is provided with valves to close off the circulation when desired.

The smoke pipe is furnished with a mitre end for inside the chimney, which facilitates the draft.

The check damper on feed door and one that connects to smoke pipe directly over top are very important parts of the heater—it enables the operator to hold the fire under perfect control and provides the means for retaining the fire from one day to the next.

NOTE—These heaters can be furnished without equipment and cold-air intake collar.

The body of the heater is made of cast-iron.

The casing is made of polished steel and coated with a bronze-colored lacquer; it is thoroughly lined with asbestos sheathing and steel inner lining that lays close against the asbestos and prevents the asbestos from crumbling out.

Solid steel casing rings make the casing strong and rigid. The crown is made to permit bolting it to the upper casing.

THE EXCELSIOR NATIONAL HOT-BLAST ROOM HEATER grate is made of triangular bars which is the only form of grate construction that breaks up the clinker completely. The grate can be renewed without taking the heater apart or removing a single bolt.

The hot-blast ring above the fire pot is supplied with air through the front where it is heated, and is discharged over the fire and burns the gas and smoke as they rise from the coal. All heaters are provided with an ash pan, which prevents the cloud of dust always present when removing ashes. Equipment furnished with all heaters as shown in illustration and are listed below.

## Specifications

Number.....	16-28	18-30	20-32	22-36
Diameter Top of Fire Pot.....Inches	16	18	20	22
Diameter of Body.....Inches	19½	21½	23½	23½
Diameter of Casing.....Inches	28	30	32	36
Height of Casing.....Inches	56	58	60	65
Size Collar.....Inches	7	7	7	8
Size Feed Door.....Inches	9x15	10¼x15	11x15	11x15
Heating capacity in cubic feet with ventilation.....	8000	11000	14000	16000
Heating capacity in cubic feet without ventilation.....	9000	13000	16000	18000
Shipping weight with full equipment.....Pounds	480	575	650	845

## Prices

(See Net Price List)

For Coal, with complete equipment.....	\$.....	\$.....	\$.....
For Wood, with complete equipment.....	.....	.....	.....
For Coal or Wood, with complete equipment.....	.....	.....	.....

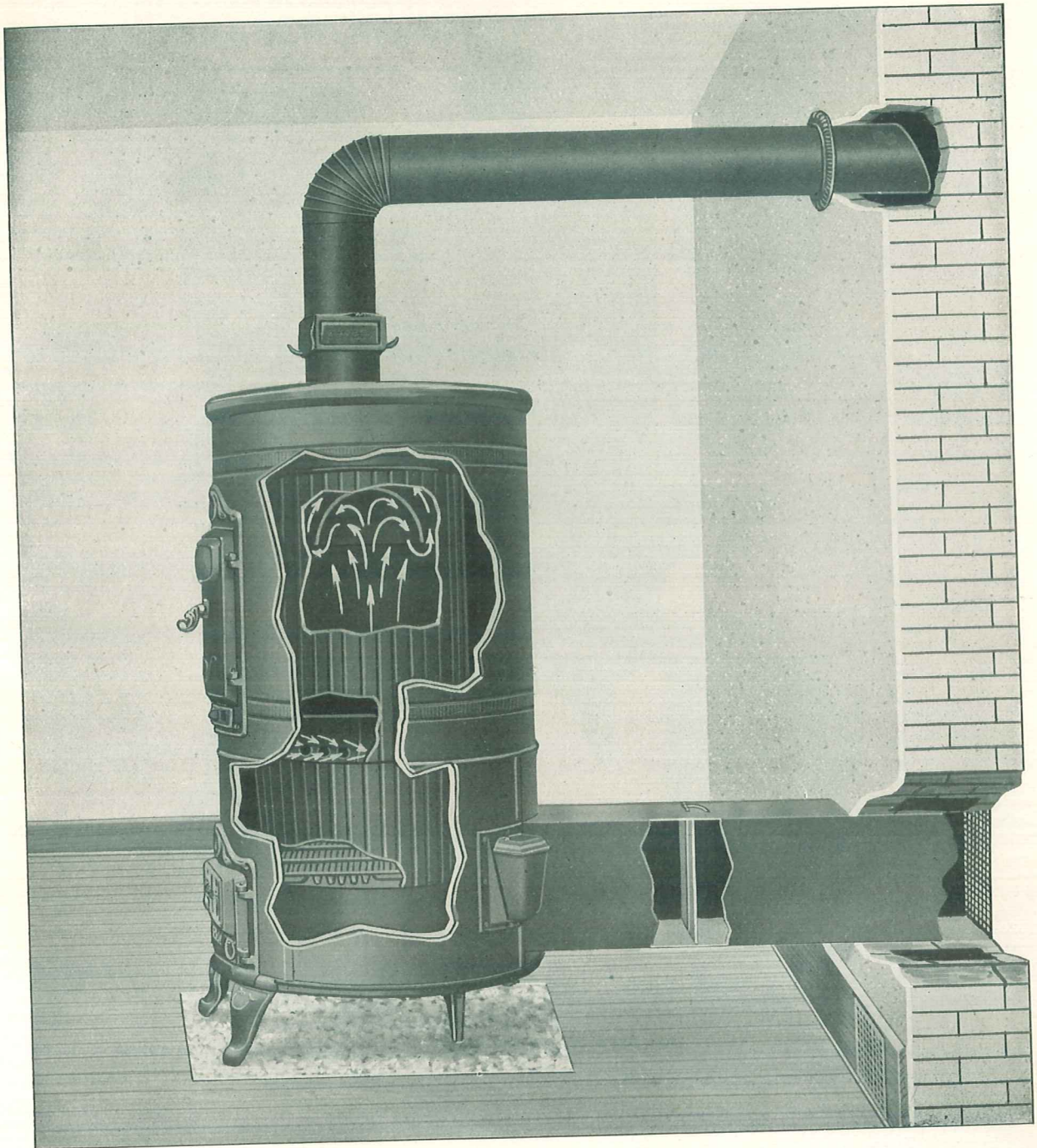
Price of EXCELSIOR NATIONAL HOT-BLAST ROOM HEATER includes the following list of equipment:

- 1 only 4-foot length Fresh-Air Duct with Damper.
- 1 only Screen for Fresh-Air Duct.
- 1 only B. J. Register for Foul-Air Ventilating Stack.
- 1 Sheet 36x42-inch Galvanized Iron for floor covering.
- 6 feet 24-gauge Black-Iron Smoke Pipe Nested.
- 1 only Mitre end for Smoke Pipe.
- 1 only 24-gauge Black-Iron Adjustable Smoke-Pipe Elbow.
- 1 only Smoke-Pipe Collar.
- NOTE—Above equipment shown on page 48 of catalog.





# NATIONAL STOVES, RANGES AND FURNACES

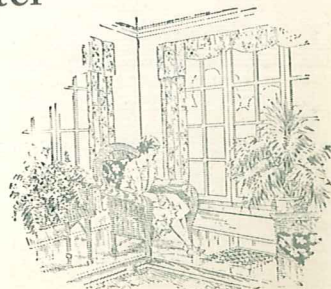


## Excelsior National Hot-Blast Room Heater

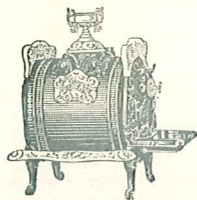
Showing Open Side View with Pipe and Fresh-Air Duct Attached

NOTE—Equipment for Style G Heater, shown on page 42, can be used on this heater if desired.

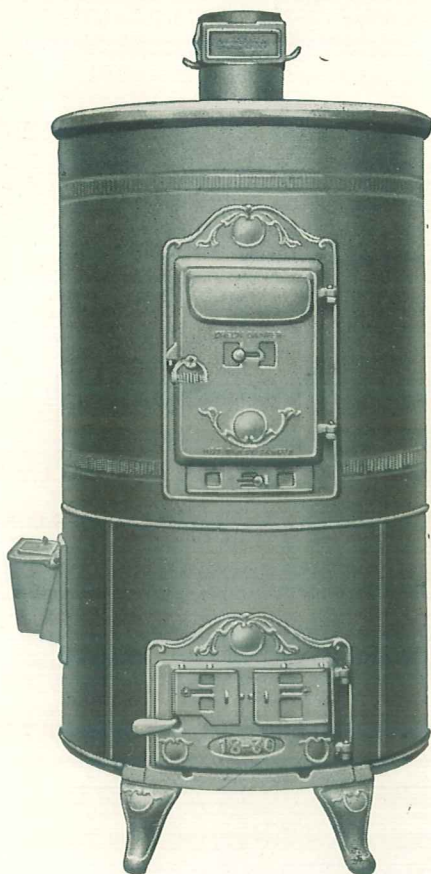
NATIONAL ROOM HEATERS ARE  
DURABLE







# EXCELSIOR STOVE & MANUFACTURING COMPANY



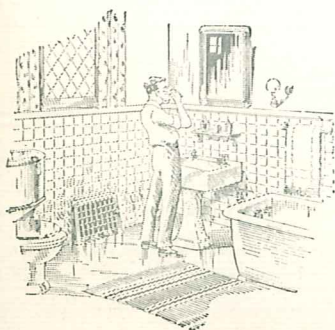
## Excelsior National Hot-Blast Room Heater

For Hard Coal, Soft Coal, Coke or Wood

A reliable heater for heating warehouses, depots, stores, or any building where the heater must be placed within the space to be heated. Heats by circulation. This circulation draws the air from the remotest corner of the room toward the heater and is replaced by warm air, insuring an even temperature throughout the entire room.

Description, Pages 50-51

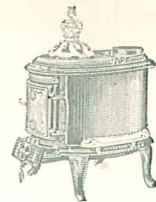
Specifications, Page 52



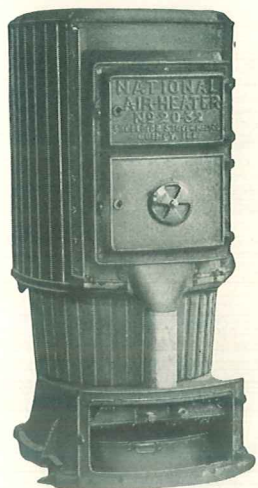
EXCELSIOR NATIONAL HOT-BLAST  
ROOM HEATERS ARE DEPENDABLE



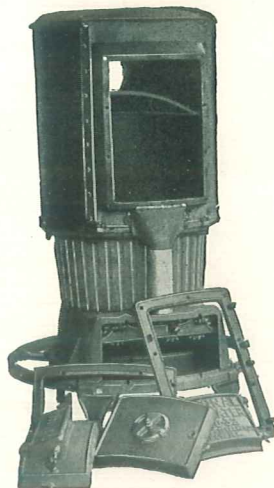
# NATIONAL STOVES, RANGES AND FURNACES



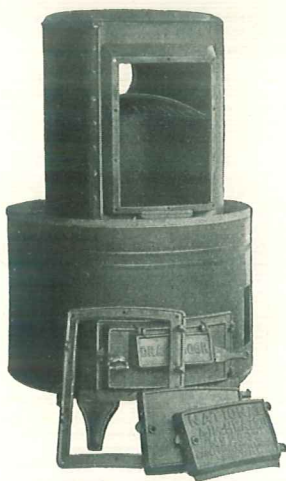
## Detail for the Assembling of the Heater and Casings



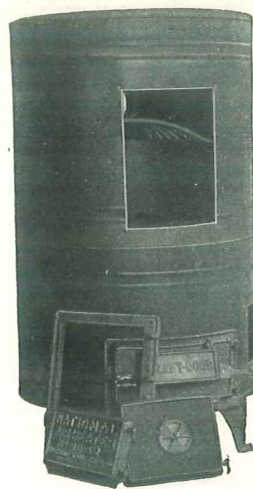
As Received from Factory  
Made So Strong That Railroads  
Cannot Damage It



1st—Remove All Doors and  
Frames and Put on the  
Legs and Lower  
Casing Ring

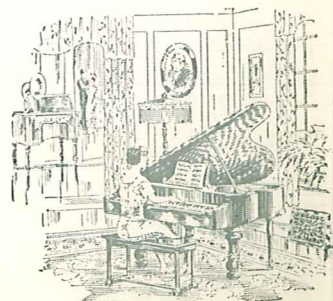


2nd—Put on Lower Casing  
and Casing Ring; Then  
Ash-Door Frame  
and Door



3rd—Put on Upper Casing;  
Then Feed Door Frame  
and Doors; Next, Top  
Casing Ring and Crown

NATIONALS ARE EASY TO ASSEMBLE

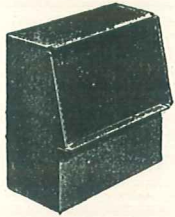




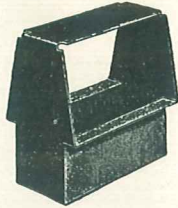


# EXCELSIOR STOVE & MANUFACTURING COMPANY

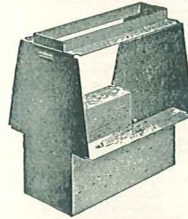
## Single Wall Pipe and Base Board Fittings



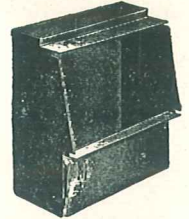
B No. 1. First Floor



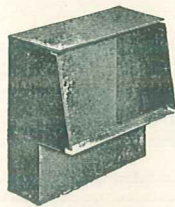
B No. 2. First Floor



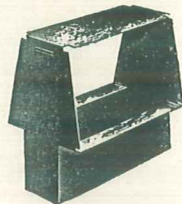
B No. 6. First Floor



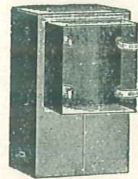
B No. 3. First Floor



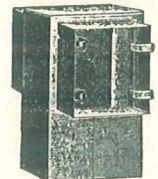
B No. 4. Second Floor



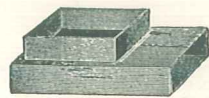
B No. 5. Second Floor



"G" Stack Head



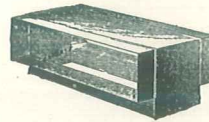
"T" Stack Head



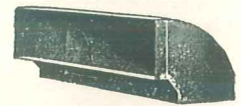
"N" Stack Head



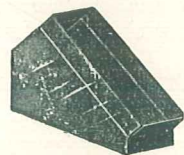
Style B Angle



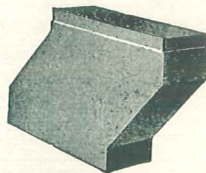
Stack Tee



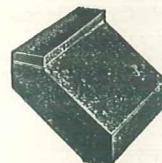
Style C Stack Elbow



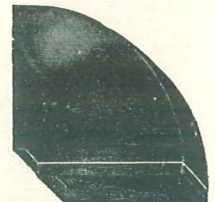
Style A Angle



Style B Stack Offset



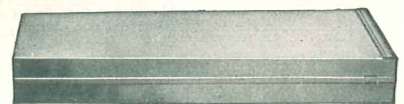
C Stack Offset



Style D Stack Elbow

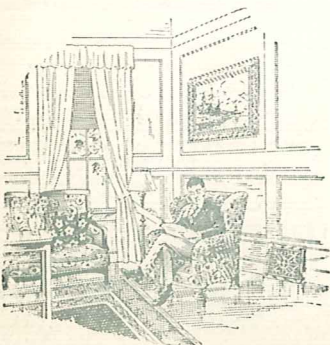


Single Wall Stack  
Nested



Single Wall Stack  
Assembled

LIST PRICES ON PAGE 58

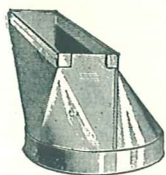




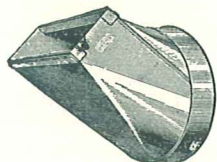
# NATIONAL STOVES, RANGES AND FURNACES



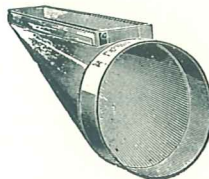
## Frictionless Boots and Combinations



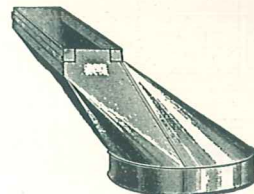
No. 0308. Boot



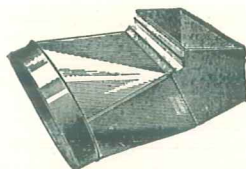
No. 0309. Boot, 45 Deg.



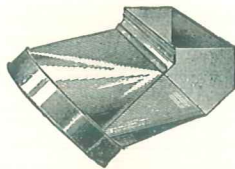
No. 0350. Boot



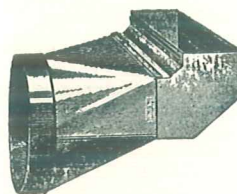
No. 0341. Boot Offsets, 4 In.  
Same List as 4 In. Offset



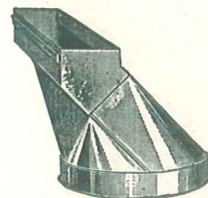
Combination No. 1  
No. 0308 Boot and "C" Offset



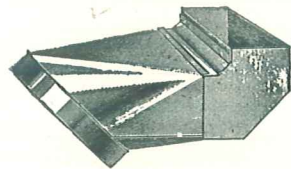
Combination No. 2  
No. 0308 Boot and "B" Angle



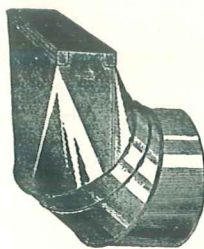
Combination No. 3  
No. 0308 Boot and "C" Ell



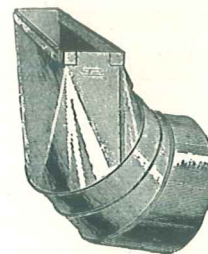
Combination No. 4  
Same as No. 2



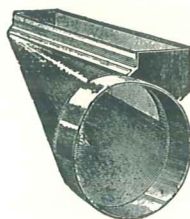
Combination No. 5  
Same as No. 3



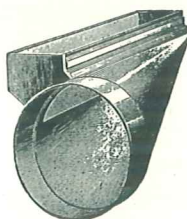
Combination No. 6  
No. 0309 Boot and 45° Angle



Combination No. 8  
No. 0309 Boot and 22 1/2° Angle



Combination No. 9  
No. 0350 Boot and "B" Angle R



Combination No. 10  
No. 0350 Boot and "B" Angle L

LIST PRICES ON PAGE 58







# EXCELSIOR STOVE & MANUFACTURING COMPANY

## LIST PRICES SINGLE WALL STACK FITTINGS

Size of Stack	Stack	G & N Heads 0308-0309 Boots C-Offset C-Elbow Stack Ell	No. 0350 Boot	A Angle	B Angle	B-Offset D-Elbow	I Head	Combi- nation No. 2	Combi- nation Nos. 9-10	Combi- nation Nos. 3-1	0341 Boot
3 x10	\$0.42	\$0.85	\$0.95	\$0.60	\$ 0.48	\$1.44	\$0.90	\$1.33	\$1.43	\$1.70	\$1.75
3 1/2 x10	.42	.85	.95	.60	.48	1.44	.90	1.33	1.43	1.70	1.75
3 x12	.46	.95	1.05	.65	.52	1.56	1.00	1.47	1.57	1.90	1.95
3 1/2 x12	.46	.95	1.05	.65	.52	1.56	1.00	1.47	1.57	1.90	1.95
3 1/2 x13	.49	1.10	1.20	.77	.64	1.85	1.15	1.74	1.84	2.20	2.30
5 1/2 x12	.54	1.20	1.30	.96	.77	2.30	1.30	1.97	2.07	2.40	2.50
5 1/2 x14	.58	1.30	1.40	1.10	.90	2.64	1.40	2.20	2.30	2.60	2.75

NOTE—Made up pipe 10% per foot list additional.

## LIST PRICE SINGLE BASE BOARD FITTINGS

Size of Register	Frame Projection	Stack Heads				Boots				No. 21 Angles		B53 4" Offsets	
		for B1-B4	for B3	for B2-B5	for B6	Size of Collar	for B1 B3-B4	Size of Collar	for B2 B5-B6	for B1 B3-B4	for B2 B5-B6	for B1-3-4	for B2 B5-B6
8x10.....	1 1/4 or 2 1/4	\$0.85	\$1.00	\$1.10	\$1.40	8"	\$0.95	9-10"	\$1.20	\$0.55	\$0.70	\$0.70	\$0.95
8x12.....	1 1/4 or 2 1/4	.95	1.10	1.20	1.45	9"	1.05	10"	1.30	.60	.80	.80	1.05
9x12.....	3 1/4	1.00	1.20	1.25	1.50	10"	1.15	12"	1.35	.65	.85	.85	1.15
8x12.....													
9x12.....	3 1/4	1.10	1.30	1.35	1.60	12"	1.20	12"	1.45	.70	.90	.90	1.20
10x12.....													
10x13.....	4 3/4 or 5 1/4	1.30	1.55	1.70	2.15	12"	1.40	14"	1.90	.90	1.10	1.10	1.25
11x13.....													
10x13.....	5 1/4	1.45	1.70	1.95	2.35	12"	1.55	14"	2.05	.95	1.20	1.20	1.55
11x13.....													
12x14.....	7 1/2	1.70	2.15	2.15	2.60	14"	1.80	14"	2.25	1.20	1.35	1.35	1.80

Lists are on IC Tin Boots, with standard size collars. For IX Tin or Galvanized Iron add 50%. Add 20 cents net additional per boot with other than standard size collars.

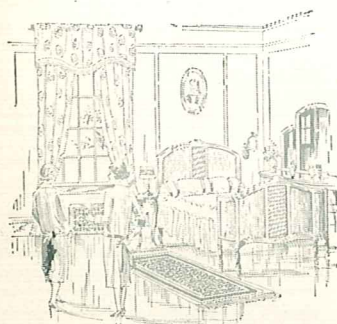
**Note**—Price on frictionless boots when used on 1A and 3A heads same price as B1-B3 boots.

Price on frictionless boots when used on A2-A6 heads same price as B2-B6 boots.

## LIST PRICE ON FRICTIONLESS BOOTS FOR DOUBLE WALL STACK

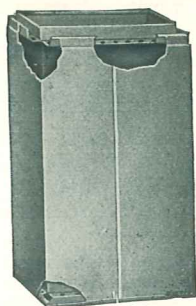
Boots No.....	0308-0309-0350				
Size Stack.....	3x10-3x11-4x11	3x12-4x13	4x14	4x15-6x13	6x14
List.....	\$0.85	\$0.95	\$1.10	\$1.20	\$1.30
No. 0341 Boot.....	1.75	1.95	2.30	2.50	2.75

Single fittings, see Pages 56-57.





# NATIONAL STOVES, RANGES AND FURNACES



## Double Wall Pipe

### Ventilated and Strictly Fire-Proof

Requires no Asbestos Covering, or Iron Lathes

Easiest Pipe to Put Together on the Market

#### LIST PRICE DOUBLE WALL PIPE

Size	No. 0 (2 in.)	No. 1 (4 in.)	No. 2 (6 in.)	No. 3 (9 in.)	No. 4 (12 in.)	No. 35 (2 feet)	No. 48 (4 feet)	No. 17 Adj. Jt.	56 Ft. Crate
3x10	\$0.50	\$0.60	\$0.70	\$0.90	\$1.00	\$1.80	\$3.60	\$1.50	\$57.00
4x11	.50	.60	.70	.90	1.00	1.80	3.60	1.50	57.00
3x12	.60	.70	.80	1.00	1.15	2.00	4.00	1.65	64.00
4x13	.60	.70	.80	1.00	1.15	2.00	4.00	1.65	64.00
4x14	.75	.85	.95	1.25	1.40	2.40	4.80	2.00	.....
6x13	.85	.95	1.05	1.35	1.60	2.80	5.60	2.75	.....
6x14	.90	1.00	1.15	1.45	1.75	3.15	6.30	3.25	.....

56-foot crates double wall pipe packed, unless otherwise ordered, with the following lengths: Two pieces of 2-inch, 4-inch, 9-inch and 12-inch, and four each of 6-inch, 2 feet, 8 feet and six pieces 18 $\frac{3}{4}$ -inch.  
 Note—Lengths given above are exclusive of lap.

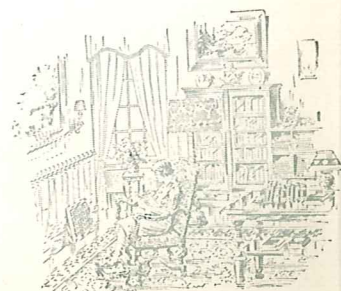
#### LIST PRICE OF DOUBLE WALL PIPE FITTINGS

Size	No. 7, 8, 9, 51, 52 Boots	No. 36, 37, 50, 55 Boots No. 29 Stack Ells	No. 10, 11, 12, 13, 14, 15, & 39 Heads 108, 109 Reg. Box	No. 21 Angle	No. 19, 20 Elbows	No. 24 Angle	No. 22, 23 Ells	No. 18 Elbow	No. 16, 25 Tee	No. 26 106 Tee	No. 107 Damper	No. 100, 105 Offset	No. 27, 28, Reducer No. 40 Increaser	Comb. 31, 32, 33, 34
3x10	\$2.10	\$2.30	\$2.05	\$0.80	\$1.60	\$1.20	\$2.40	\$1.40	\$2.00	\$2.80	\$1.50	\$4.00	\$1.70	\$3.50
4x11	2.10	2.30	2.05	.80	1.60	1.20	2.40	1.40	2.00	2.80	1.50	4.00	1.70	3.50
3x12	2.35	2.50	2.20	.90	1.80	1.30	2.60	1.50	2.15	2.80	1.50	4.35	1.80	3.85
4x13	2.35	2.50	2.20	.90	1.80	1.30	2.60	1.50	2.15	2.80	1.50	4.35	1.80	3.85
4x14	2.70	2.75	2.40	1.10	2.20	1.60	3.20	1.80	2.55	3.60	1.90	5.35	2.15	4.40
6x13	3.50	3.90	3.40	1.60	3.20	2.25	4.50	2.80	3.85	4.60	2.80	6.00	3.25	6.30
6x14	3.90	4.25	3.75	2.00	4.00	2.75	5.50	3.10	4.25	5.20	3.00	6.65	4.00	6.90

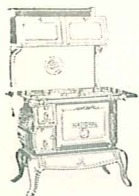
When ordering Boots always mention size of collar wanted. See detail below.

#### DETAIL OF DOUBLE WALL PIPE

Size	Area of Pipe	Inside Measurement	Outside Measurement	Size Collars in Boots	Size Registers
3x10	24 in.	2 $\frac{3}{8}$ x 9	3 x 9 $\frac{5}{8}$	7 and 8 in.	6x 8- 8x10
4x11	30 in.	3 x10	3 $\frac{5}{8}$ x10 $\frac{5}{8}$	8 and 9 in.	8x10- 9x12
3x12	28 $\frac{1}{2}$ in.	2 $\frac{3}{8}$ x12	3 x12 $\frac{5}{8}$	8 and 9 in.	8x10- 9x12
4x13	36 in.	3 x12	3 $\frac{5}{8}$ x12 $\frac{5}{8}$	8-9 and 10 in.	8x10-10x14
4x14	39 in.	3 x13	3 $\frac{5}{8}$ x13 $\frac{5}{8}$	9 and 10 in.	10x12-10x14
6x13	48 in.	5 x12	5 $\frac{5}{8}$ x12 $\frac{5}{8}$	9 and 10 in.	10x12-10x14
6x14	65 in.	5 $\frac{1}{2}$ x13	6 $\frac{1}{8}$ x13 $\frac{5}{8}$	10 and 12 in.	10x14-12x15

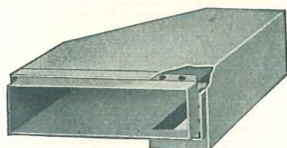




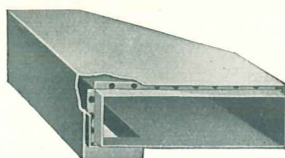


# EXCELSIOR STOVE & MANUFACTURING COMPANY

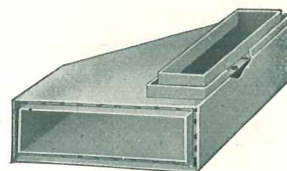
## Double Wall Pipe Fittings for Wall Stacks



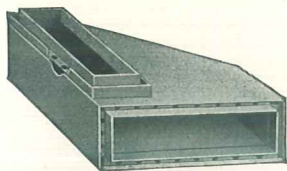
No. 101. Stack Offset



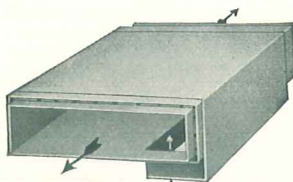
No. 102. Stack Offset



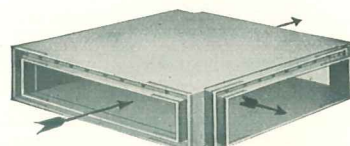
No. 103. Stack Offset



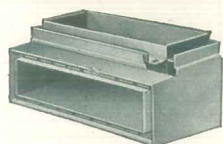
No. 104. Stack Offset



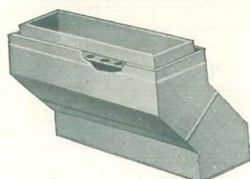
No. 105. Stack Offset



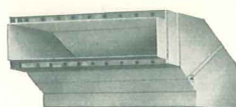
No. 106. Stack Tee



No. 18. Stack Elbow



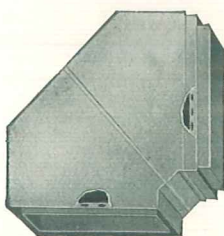
No. 19. Stack Elbow



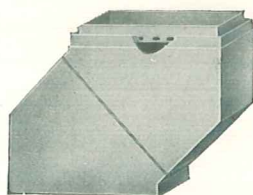
No. 20. Stack Elbow



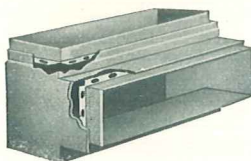
No. 21. Stack Angle



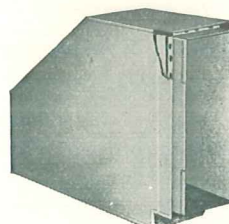
No. 22. Stack Elbow



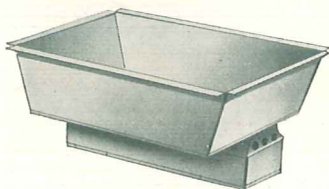
No. 23. Stack Elbow



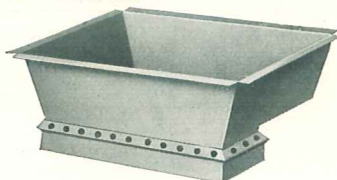
No. 25. Through Tee



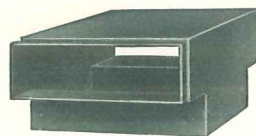
No. 29. Stack Elbow



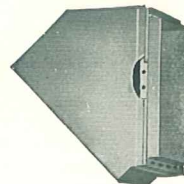
\*No. 108. Register Box



\*No. 109. Register Box



No. 16. Tee

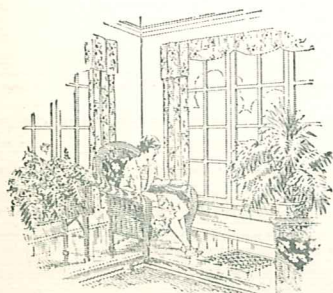


No. 24. Stack Angle

### \*Size Registers Used with Nos. 108-109 Register Boxes

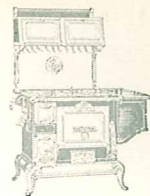
Number Pipe....	3x10	4x11	3x12	4x13	4x14	4x15	6x13	6x14
Size Register.....	8x10	8x12	8x12- 9x12	8x12- 9x12	10x14	10x14	10x12	10x14
		9x12-10x12	10x12-10x14	10x12-10x14				

LIST PRICES ON PAGE 59

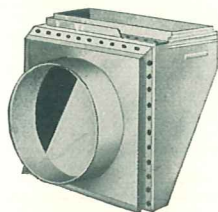




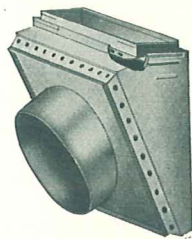
# NATIONAL STOVES, RANGES AND FURNACES



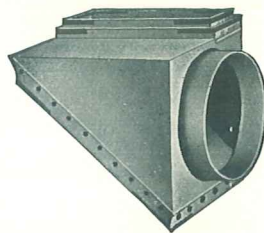
## Double Wall Pipe Fittings for Wall Stacks



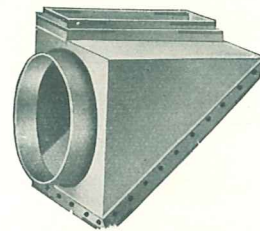
No. 7. Boot



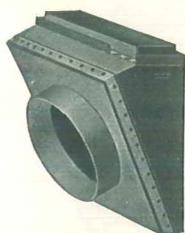
No. 9. Boot



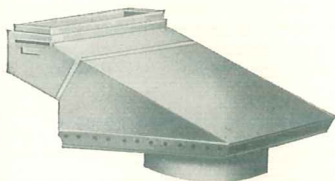
No. 36. Boot



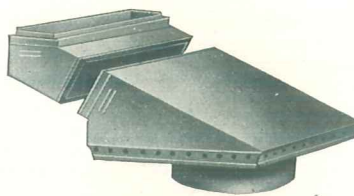
No. 37. Boot



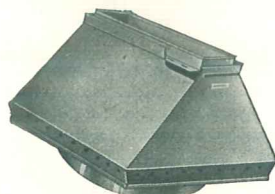
No. 52. Boot



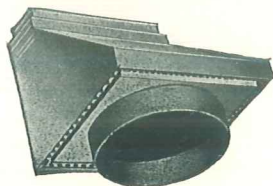
Combination No. 52 Boot and No. 53 Boot Offset



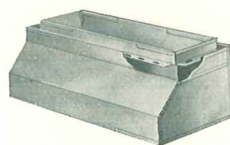
No. 50. Boot



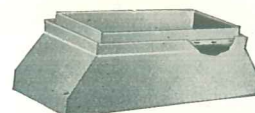
No. 51. Boot



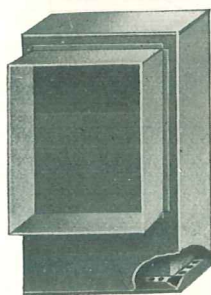
No. 8. Boot



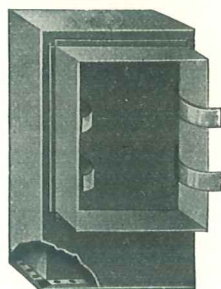
No. 28. Reducer



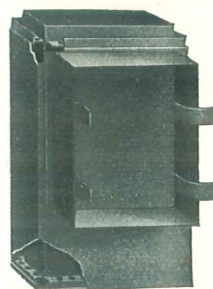
No. 27. Reducer



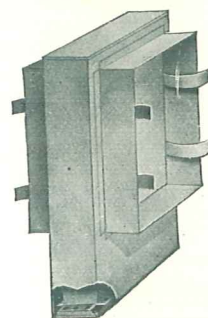
No. 14. Stack Head with Floor Flange



No. 10. Stack Head with Side Wall Flange



No. 15. Stack Head with Pipe Extension

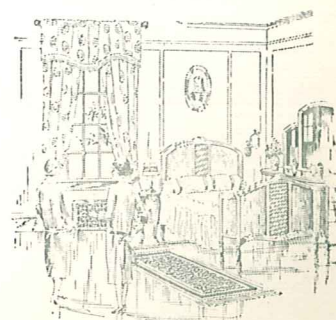


No. 12. Stack Head Double Header

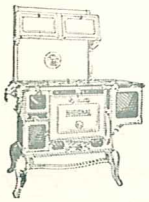
SEE FRICTIONLESS BOOTS, PAGE 57

These Stack Heads Are for Side Wall Registers,  
Not Base Board Registers

LIST PRICES ON PAGE 59

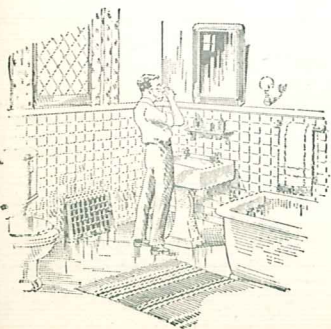
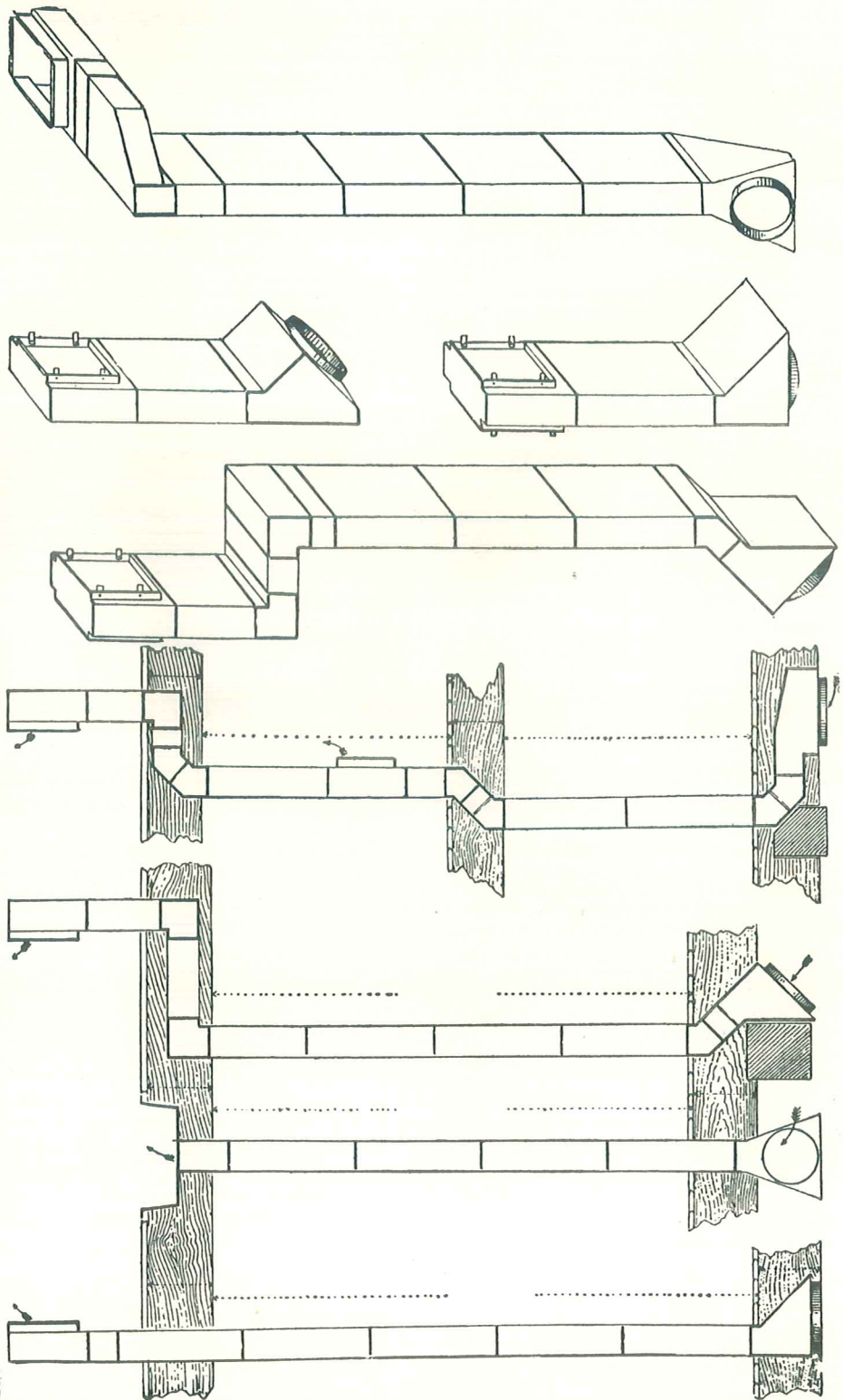






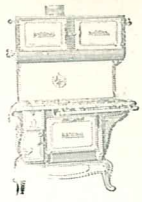
# EXCELSIOR STOVE & MANUFACTURING COMPANY

Samples of Combinations That Can Be Made from Our Double Wall Pipe

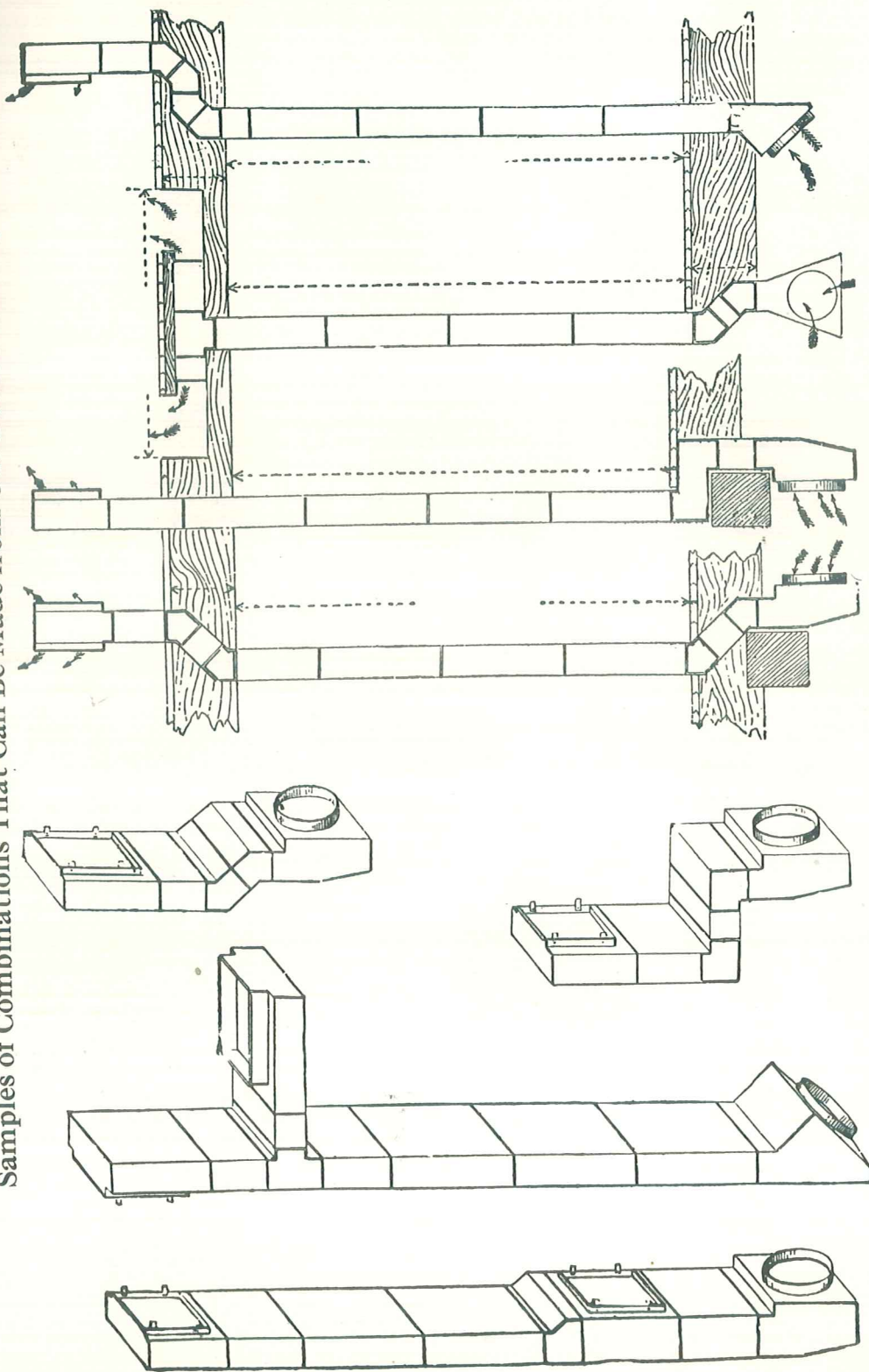




# NATIONAL STOVES, RANGES AND FURNACES



Samples of Combinations That Can Be Made from Our Double Wall Pipe

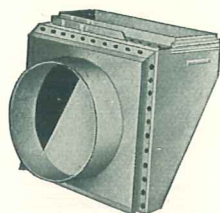




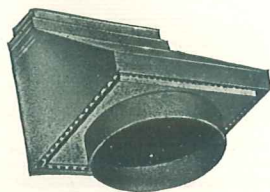


# EXCELSIOR STOVE & MANUFACTURING COMPANY

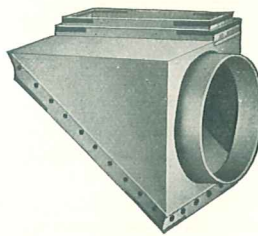
## Double Wall Pipe Fittings for Base Board Registers For One Register on First Floor



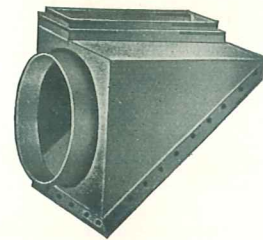
No. 207. Boot



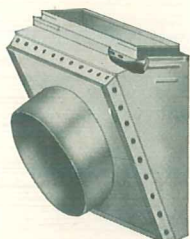
No. 208. Boot



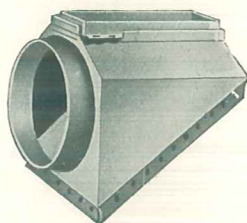
No. 236. Boot



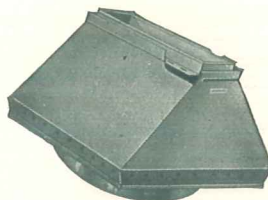
No. 237. Boot



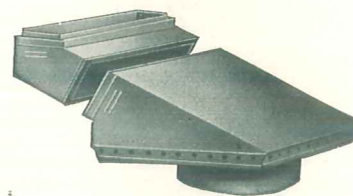
No. 252. Boot



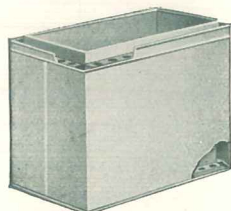
No. 250. Boot



No. 251. Boot



No. 252. Boot and  
253 Boot Offset



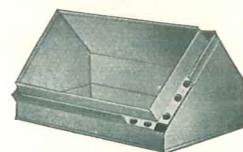
No. 202 1/2. Section



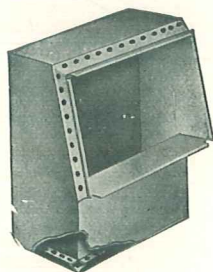
No. 201. Section



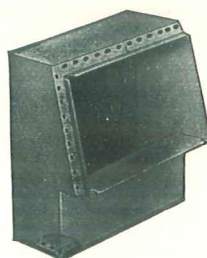
No. 200. Section



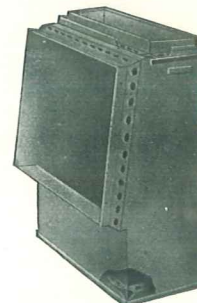
No. 221. Angle



No. 1A. Stack Head  
for First Floor



No. 4A. Stack Head  
for Second Floor



No. 3A. Stack Head  
for First Floor

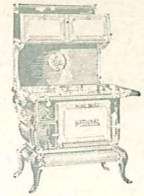
Note—These fittings are for one register only.



LIST PRICES ON PAGE 59



# NATIONAL STOVES, RANGES AND FURNACES



## List Price of Fittings for Base Board Registers

HART & COOLEY OR TUTTLE & BAILEY  
FIRST FLOOR FOR ONE REGISTER

Size of Register	Size of Collar in Boots	Stack Heads			Boots for 1A-3A	Boot Offset 253, 1A-3A	221 Angles 1A-3A	2-in. Sec. No. 200	4-in. Sec. No. 201	8-in. Sec. No. 202½
		1A-4A	3A	5A						

H. & C. No. 152¼ AND T. & B. No. 900. SIZE, 6⅛

8x10	8	\$2.30	\$2.75	\$2.75	\$2.30	\$1.60	\$1.20	\$0.70	\$0.85	\$1.15
9x12	9	2.40	2.90	2.95	2.40	1.70	1.30	.75	.90	1.25

H. & C. No. 153¼ AND T. & B. No. 900. SIZE, 6⅝

10x12	10	\$2.65	\$3.20	\$3.20	\$2.60	\$1.80	\$1.45	\$0.80	\$0.95	\$1.35
-------	----	--------	--------	--------	--------	--------	--------	--------	--------	--------

H. & C. No. 153¼ AND T. & B. No. 900. SIZE, 7⅛

Note—Size 12x14 T. & B. Only

11x13	12	\$2.75	\$3.30	\$3.40	\$2.70	\$1.90	\$1.50	\$0.85	\$1.00	\$1.40
12x14	12	3.30	3.95	4.10	3.20	2.65	2.05	1.00	1.20	1.60

H. & C. No. 155¼ AND T. & B. No. 900. SIZE, 8⅝

12x14	14	\$3.90	\$4.70	\$4.90	\$3.70	\$3.25	\$2.65	\$1.25	\$1.45	\$2.00
-------	----	--------	--------	--------	--------	--------	--------	--------	--------	--------

### SECOND FLOOR FOR ONE REGISTER

H. & C. No. 151¼ AND T. & B. No. 900. SIZE, 5⅝

Size of Registers	Size of Wall Pipe	Size Collars in Boots	Stack Head No. 4A	No. 0 Wall Pipe 2-Inch	No. 1 Wall Pipe 4-Inch	No. 2 Wall Pipe 6-Inch	No. 35 Wall Pipe 2-Foot
8x10	4x11	8	\$2.30	\$0.50	\$0.60	\$0.70	\$1.80
8x12	4x13	8-9	2.40	.60	.70	.80	2.00
9x12	4x13	8-9-10	2.40	.60	.70	.80	2.00

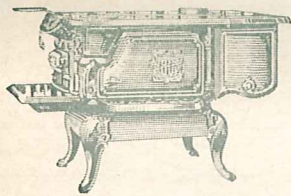
Note—When ordering stack heads, always mention size and style register it is intended to fit.

When ordering boots, always mention size collar, number of stack head, size and style register it is intended to fit.

Size Extension Collar on No. 3A Head	Size of Extension Pipe by Using No. 27-28 Reducer
8x10	4x11
8x12	3x12 or 4x13
9x12	3x12 or 4x13
10x12	3x12 or 4x13
12x14	4x15
	4x11
	4x11
	4x11
	4x13 or 4x14

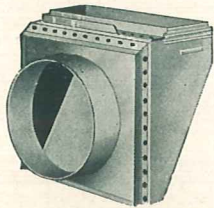




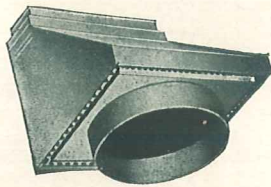


# EXCELSIOR STOVE & MANUFACTURING COMPANY

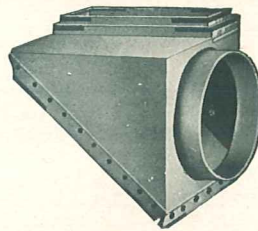
## Double Wall Pipe Fittings for Base Board Registers For Two Registers on First Floor



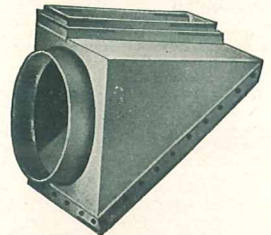
No. 507. Boot



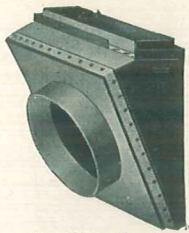
No. 508. Boot



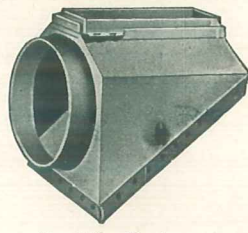
No. 536. Boot



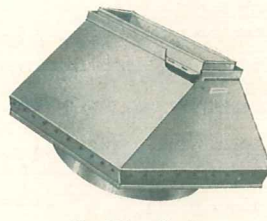
No. 537. Boot



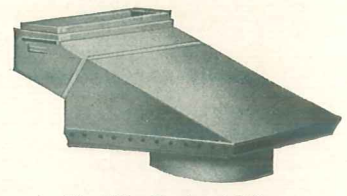
No. 552. Boot



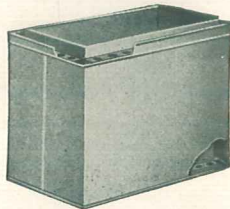
No. 550. Boot



No. 551. Boot



No. 552. Boot and 553  
Boot Offset



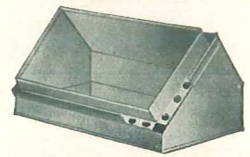
No. 502 1/2. Section



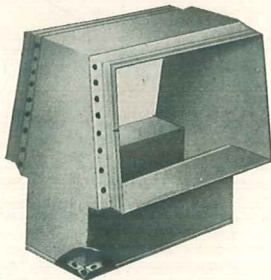
No. 501. Section



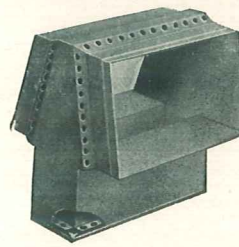
No. 500. Section



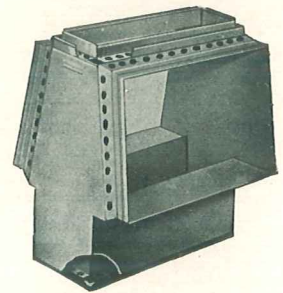
No. 521. Angle



No. 2A. Stack Head  
for First Floor



No. 5A. Stack Head  
for Second Floor



No. 6A. Stack Head  
for First Floor

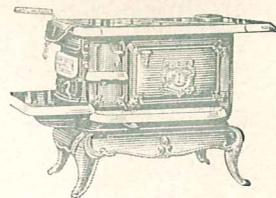
**Note**—These fittings are for two registers (double headers).

LIST PRICES ON PAGE 67





# NATIONAL STOVES, RANGES AND FURNACES



## List Price of Fittings for Base Board Registers

HART & COOLEY OR TUTTLE & BAILEY  
FIRST FLOOR FOR TWO REGISTERS (DOUBLE HEADERS)

Size Register	Size of Collars in Boots	Stack Heads		Boots for 2A-6A Heads	Boot Offset No. 553 for 2A-6A	No. 521 Angle for 2A-6A Heads	2-Inch Section No. 500	4-Inch Section No. 501	8-inch Section No. 502½
		2A	6A						

H. & C. No. 152¼ AND T. & B. No. 900. SIZE, 6⅞

8x12	8	\$2.75	\$3.50	\$2.80	\$1.65	\$1.45	\$0.80	\$0.95	\$1.35
9x12	9	2.95	3.60	3.00	1.90	1.55	.90	1.05	1.45

H. & C. No. 153¼ AND T. & B. No. 900. SIZE, 6⅝

10x12	9-10	\$3.20	\$3.85	\$3.20	\$2.05	\$1.70	\$0.95	\$1.15	\$1.55
-------	------	--------	--------	--------	--------	--------	--------	--------	--------

H. & C. No. 155¼ AND T. & B. No. 900. SIZE, 7⅞

12x14	14	\$4.90	\$5.85	12", \$4.40 14", \$5.00	\$3.50	\$3.00	\$1.60	\$2.20	\$3.00
-------	----	--------	--------	----------------------------	--------	--------	--------	--------	--------

### SECOND FLOOR FOR TWO REGISTERS (DOUBLE HEADERS)

H. & C. No. 151¼ AND T. & B. No. 900. SIZE, 5⅝

Size of Register	Size of Wall Pipe	Size of Collars in Boots	Stack Head No. 5A	No. 0 Wall Pipe 2-Inch	No. 1 Wall Pipe 4-Inch	No. 2 Wall Pipe 6-Inch
8x10	4x11	9-10	\$2.75	\$0.50	\$0.60	\$0.70
8x12	4x13	9-10	2.95	.60	.70	.80
9x12	4x13	9-10	2.95	.60	.70	.80

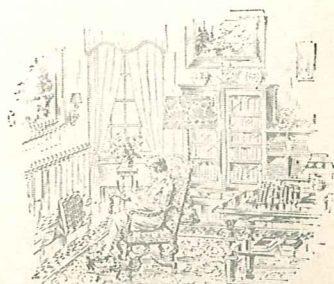
For price of frictionless Boots, see page 58.

**Note**—When ordering stack heads, always mention size and style register it is intended to fit.

When ordering boots always mention size collar, number of stack head, size and style register it is intended to fit.

For side wall fittings, see pages 59-60-63.

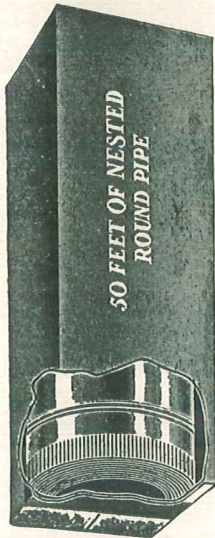
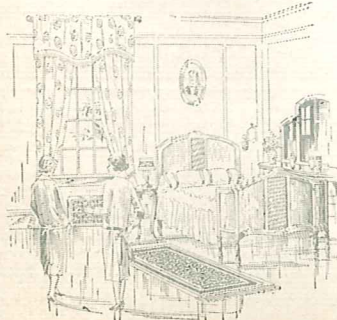
Size of Extension Collar on No. 6A Stack Head		Size of Extension Pipe by Using No. 27 Reducer	
8x10	4x11		
8x12	3x12 or 4x13		4x11
9x12	3x12 or 4x13		4x11
10x12	3x12 or 4x13		4x11
10x13	4x14		4x11 or 4x13
12x14	4x14		4x11 or 4x13 or 4x14
12x14	4x15		4x13 or 4x14







# EXCELSIOR STOVE & MANUFACTURING COMPANY



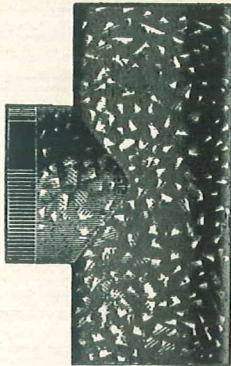
Nested Pipe



Top Collar



Side Collar

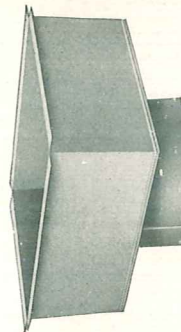


Tee Joint

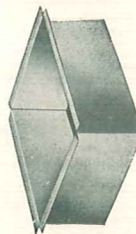
## List Price Tin, Galvanized, Black Iron Round Pipe, Etc.

Size	6	7	8	9	10	12	14	16	18	20	22	24	26	28	30	36
I C Tin Pipe, Nested.....	\$0.29	\$0.30	\$0.33	\$0.37	\$0.42	\$0.51	\$0.78	\$0.90	\$0.95	\$1.10	\$1.35	\$1.60	\$1.85	\$2.10	\$2.35	\$3.10
I X Tin Pipe, Nested.....	.36	.36	.40	.45	.50	.60	.70	.80	.80	.80	.80	.80	.80	.80	.80	.80
Galvanized Iron, 26 Gauge, Nested.....	.39	.39	.43	.47	.52	.62	.80	.90	1.00	1.15	1.40	1.60	1.85	2.10	2.35	\$3.10
Galvanized Iron, 24 Gauge, Nested.....	.45	.48	.52	.59	.64	.74	.90	1.00	1.15	1.40	1.60	1.90	2.15	2.45	2.70	
Black Iron, 24 Gauge.....	.39	.39	.43	.47	.52	.62	.74	.80	.80	.80	.80	.80	.80	.80	.80	
Galvanized and Black Iron Tees, 26 Gauge.....	1.10	1.10	1.30	1.50	1.90	2.60	3.30	3.30	3.30	3.30	3.30	3.30	3.30	3.30	3.30	
Galvanized and Black Iron Tees, 24 Gauge.....	1.45	1.45	1.75	2.20	2.60	3.40	.74	1.00	1.26	1.80	1.20	1.40	1.60	1.80	2.00	
Galvanized Casing Collars for side of Bonnet.....	.40	.40	.40	.46	.50	.60	.46	.60	.76	.90	1.20	1.40	1.60	1.80	2.00	
Galvanized Casing Collars for top of Bonnet.....	.20	.20	.24	.28	.30	.36	.80	1.00	1.20	1.40	1.60	1.80	2.00	2.20	2.40	
Hot-Air Pipe Dampers.....	.24	.28	.32	.36	.40	.60										

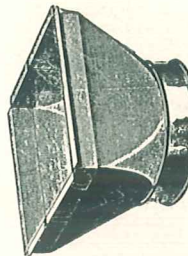
Note—Add 10% per foot to list on made up pipe. Standard 2 foot joints.



Galvanized Register Box



Regular Box Without Collar



Tin Register Box, Funnel-Shaped

## List Price Single Register Boxes

Size Box	6x8	8x10	8x12	9x12	10x12	10x14	12x14	12x15	14x16	14x18	14x20	16x18	16x20	16x24	18x24	20x24	20x26	21x29	24x24	27x27	27x38	30x30	36x36
Size Collars... In.	6	8	8	8-9	9-10	9-10	10-12	10-12	12-14	12-14	12-14	14-16	14-16	14-16	16-18	18-20	18-20	18-20	20-24	24-26	26-28	28-30	30-36
I C Tin.....		\$0.72	\$0.77	\$0.86	\$0.96	\$1.05	\$1.15	\$1.20	\$1.25	\$1.30	\$1.35	\$1.40	\$1.45	\$1.50	\$1.55	\$1.60	\$1.65	\$1.70	\$1.75	\$1.80	\$1.85	\$1.90	\$1.95
I X Tin.....		.90	.95	1.00	1.05	1.10	1.15	1.20	1.25	1.30	1.35	1.40	1.45	1.50	1.55	1.60	1.65	1.70	1.75	1.80	1.85	1.90	1.95
Galvanized Iron.....		.90	1.00	1.00	1.30	1.40	1.80	1.80	2.15	2.40	2.65	3.00	3.10	3.60	4.30	4.80	\$5.40	\$6.25	\$6.00	\$6.50	\$8.00	\$7.00	\$8.00

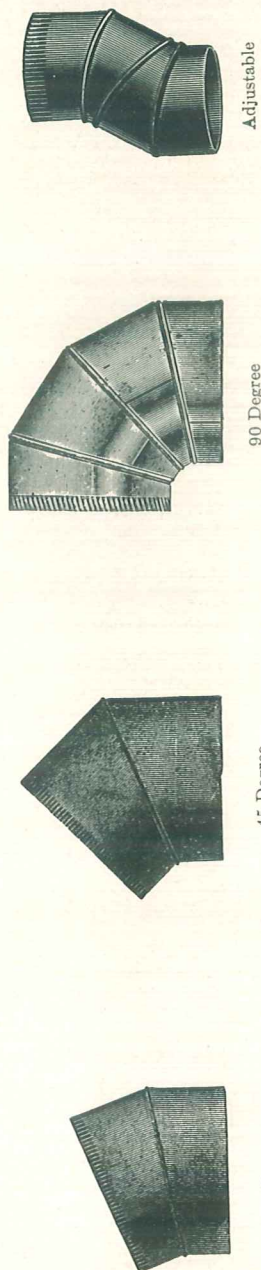
Second-Floor Single Boxes, 10 inches deep, without collars, same price as above.

Double Register Boxes, add 50 per cent to above prices.

NOTE—When Galvanized Register Boxes are wanted, it is well to remember that boxes for Hot Air have large end collars, and boxes for Cold Air have small end collars. Orders should, therefore, state for what purpose they are to be used.

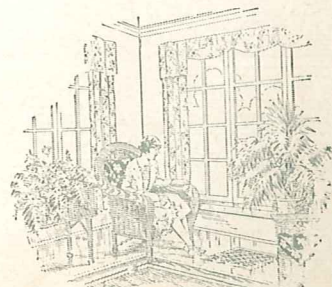


# NATIONAL STOVES, RANGES AND FURNACES

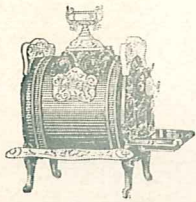


## List Price Each, Adjustable Tin, Galvanized and Black Elbows

Size.....	Inches	5	6	7	8	9	10	12	14	16	18	20	22	24	26	28	30	36
Elbows, 4-piece, 90°, I C Tin.....								\$1.00										
Elbows, 4-piece, 90°, I X Tin.....								.85										
Angles, 45°, I C Tin.....								.45										
Angles, 45°, I X Tin.....								.58										
Angles, 30°, I C Tin.....								.40										
Angles, 30°, I X Tin.....								.50										
Galvanized Elbows, 90°, 26 Gauge.....								1.20										
Galvanized Elbows, 90°, 24 Gauge.....								1.50										
Galvanized Angles, 22½° and 45°, 26 Gauge.....								.87										
Galvanized Angles, 22½° and 45°, 24 Gauge.....								1.07										
Black Iron Elbows, 24 Gauge.....								1.20										

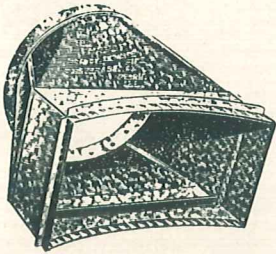




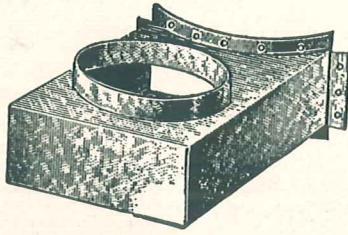


# EXCELSIOR STOVE & MANUFACTURING COMPANY

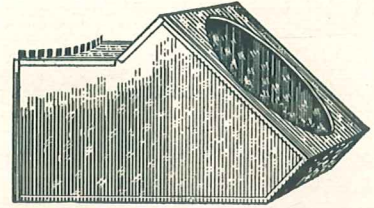
## List Price, Galvanized Iron Cold Air Shoes, Square Pipe and Elbows



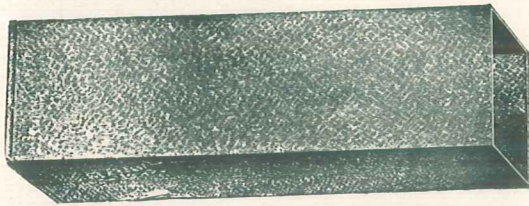
No. 100 Shoe



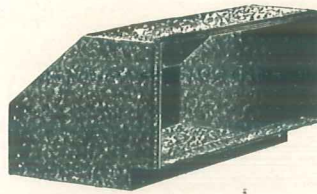
No. 200 Shoe



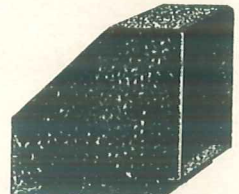
National Shoe



Square Pipe



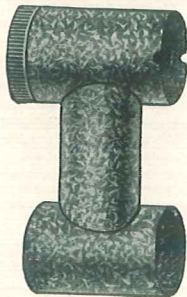
Sq. Elbow, Style A



Sq. Elbow, Style B

Size of Pipe and Shoe	Size of Collar	No. 100 Each	No. 200 Each	National Each	Size of Pipe	List Per Foot Made Up	Elbows Each
10 x16	14-inch	\$ 4.85	\$ 4.85	\$ 4.85	10 x16	\$ 1.80	\$ 6.00
12 x18	16-inch	5.30	5.30	5.30	12 x17	2.10	6.80
12 x23	18-inch	6.15	6.15	6.15	12 x22	2.40	7.20
12 x27	20-inch	7.00	7.00	7.00	12 1/2 x26	2.80	8.00
12 x32	22-inch	8.00	8.00	8.00	14 x28	3.20	9.00
12 x38	24-inch	9.00	9.00	9.00	15 x32	3.60	10.50
13 1/2 x40	26-inch	10.00	10.00	10.00			
13 1/2 x46	28-inch	11.00	11.00	11.00			
13 1/2 x53	30-inch	13.00	13.00	13.00			

When ordering Cold Air Shoes, give Cut Number, Size Collar and Diameter of Casing it is intended to fit.



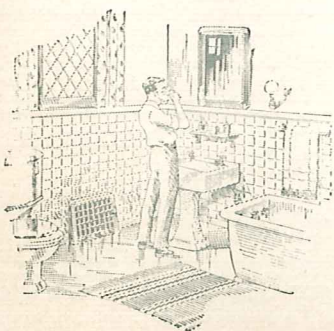
Style A

### DOUBLE TEE JOINT Made of Galvanized Iron

	Price List
Style A or B, for No. 21-44 Cycloidal Furnace, only, each	\$.....
Style A or B, for No. 24-48 Cycloidal Furnace, only, each	.....
Style A or B, for No. 27-51 Cycloidal Furnace, only, each	.....
Style A or B, for No. 27-60 Cycloidal Furnace, only, each	.....
Style A or B, for all Excel Pipe Furnaces, only, each	.....
Style A or B, for all Excel Pipeless Furnaces, only, each	.....



Style B





# NATIONAL STOVES, RANGES AND FURNACES



## The Champion Hot Water Combination Heaters

Designed to be used in our Cycloidal, Excel and Solar Furnaces, to make them Combination Warm-Air and Hot-Water Heaters. This system is recommended where some of the rooms are remote from the furnace.

### The Base Section

The construction of this section permits its being placed directly at the top of the fire, in which position its large surfaces are subject to the strongest effect of the fire, making it a powerful heater. The opening in front of heater is placed opposite the feed door to permit the addition of fuel to the fire; the opening at the top of heater allows the flame and reflection of the fire to come in contact with the surfaces of the furnace, as without the application of the heater, this section can be used alone or with one or more ring sections added as is desired.

### The Ring Section

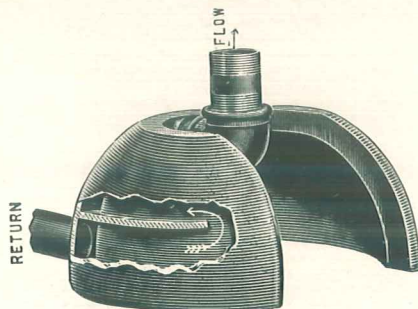
The curved surfaces on the ring, of which this section is composed, makes it possible to expose more surface to the action of the fire than by any other construction known. One or more of these sections can be used together according to the amount of radiation to be used. The fire passing through spaces between the rings permits its direct action upon each section added, making it a powerful heater.

### The Base with Rings Added

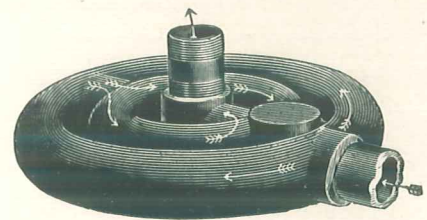
The opening at top of base section permits the flame and reflection of the fire to come in direct contact with each ring section; one or more rings can be added to be determined by the amount of radiation to be used.

### Note

The capacities of these heaters as given in lists are fully guaranteed, and persons using them are advised that it is not necessary to select a heater of greater capacity than is recommended in lists.



Base Section When Used Without Ring Sections



Ring Section May Be Used with or Without the Base Section

Number of Boiler	Style of Boiler	Outside Diameter of Boiler in Inches	Height of Boiler in Inches	Capacity of Boiler in Sq. Ft. Radiation	Size of Flow and Return in Inches	Price
12	Base Sec.	12	6	40	1½	\$...
14	Base Sec.	14	8½	125	1½	....
17	Base Sec.	17	10	200	2	....
20	Base Sec.	20	10	275	2½	....
23	Base Sec.	23	10	365	2½	....

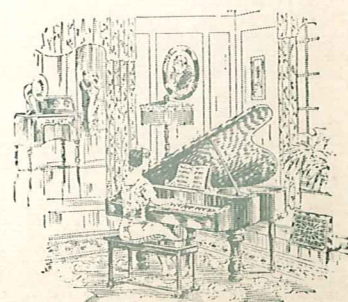
When the heater will permit, the base and one or more ring sections may be added, thereby increasing the radiation.

If possible, always select a heater about four inches less in diameter than the space in combustion chamber of furnace. This permits the fire to pass over outside as well as inside surfaces, and gives greater capacity to heater.

All mains and risers not covered are counted as radiation. Two collars with set-screws are furnished with each heater. Openings will be bushed to any size ordered.

Number of Boiler	Style of Boiler, Ring Section	Outside Diameter of Boiler in Inches	Height of Boiler in Inches	Capacity of Boiler in Sq. Ft. Radiation	Size of Flow and Return in Inches	Price
121	1 Sec.	12	4	40	1½	\$...
122	2 Sec.	12	9	75	1½	....
141	1 Sec.	14	5	75	1½	....
142	2 Sec.	14	10	140	1½	....
171	1 Sec.	17	5	125	2	....
172	2 Sec.	17	10	225	2	....
201	1 Sec.	20	5	175	2½	....
202	2 Sec.	20	10	300	2½	....
231	1 Sec.	23	5	225	2½	....
232	2 Sec.	23	10	400	2½	....

Note—This style heater can be furnished tapped on edge for return, as shown in cut, but will be furnished tapped top and bottom unless otherwise ordered.







# EXCELSIOR STOVE & MANUFACTURING COMPANY

## Hart & Cooley Steel Non-Detachable Face Registers

### LIST PRICES

#### No. 191 1/4—Depth, 1 1/4 Inches

Size	Free Air Capacity Face Sq. In.	Black Japanned	White Japanned Oak Lacquered Finishes	Electroplated	
				*Oxidized Copper	*Brass Bronze, Nickel
8x10	63	\$2.00	\$2.35	\$3.50	\$3.85
8x12	78	2.40	2.90	3.95	4.35
9x12	88	2.50	3.00	4.00	4.40

#### No. 192 1/4—Depth, 2 1/4 Inches

8x10	63	\$2.00	\$2.35	\$3.50	\$3.85
8x12	78	2.40	2.90	3.95	4.35
9x12	88	3.00	3.50	4.50	4.90

#### No. 193 1/4—Depth, 3 1/4 Inches

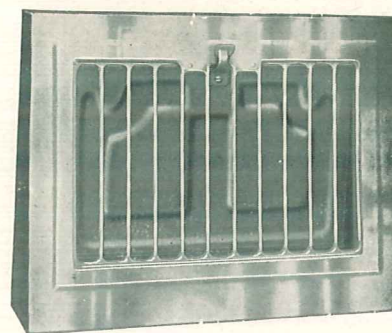
8x12	78	\$3.00	\$3.50	\$4.50	\$4.90
10x12	98	4.00	4.60	5.75	6.35
10x13	107	4.20	5.00	6.20	7.00
11x13	118	4.50	5.25	6.75	7.50

#### No. 194 3/4—Depth, 4 3/4 Inches

10x13	107	\$4.85	\$5.50	\$7.00	\$8.00
-------	-----	--------	--------	--------	--------

#### No. 195 1/4—Depth, 5 1/8 Inches

11x13	118	\$5.25	\$6.00	\$7.50	\$8.25
12x14	149	6.50	7.50	8.50	9.50



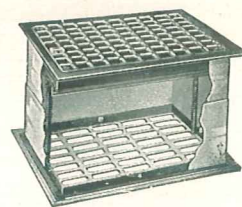
190 Series

## Hart & Cooley

### No. 2250 Adjustable Ventilators

Size, 8x12.....	List \$4.80
Size, 10x14.....	7.60

Designed to carry surplus heat from a lower to an upper room. Each consists of one Black Japanned Steel Floor Register and White Face, attached to a tin box which is adjustable from 7 to 12 inches in depth.





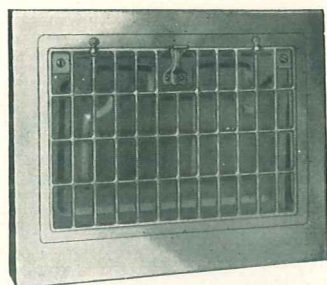
# NATIONAL STOVES, RANGES AND FURNACES



## Hart & Cooley Steel Register

### LIST PRICES

#### No. 151 1/4—Depth, 1 1/4 Inches



150 Series  
Detachable Face

Free Air Capacity Face Sq. In.	Size	Black Japanned	White Japanned Oak Lacquered Finishes	Oxidized Copper	Electro- plated Brass- Bronze, Nickel
55	8x10	\$2.00	\$2.35	\$3.50	\$3.85
68	8x12	2.40	2.90	3.95	4.35
78	9x12	2.50	3.00	4.00	4.40

#### No. 152 1/4—Depth, 2 1/4 Inches

Free Air Capacity Face Sq. In.	Size	Black Japanned	White Japanned Oak Lacquered Finishes	Oxidized Copper	Electro- plated Brass- Bronze, Nickel
55	8x10	\$2.00	\$2.35	\$3.50	\$3.85
68	8x12	2.40	2.90	3.95	4.35
78	9x12	3.00	3.50	4.50	4.90

#### No. 153 1/4—Depth, 3 1/4 Inches

Free Air Capacity Face Sq. In.	Size	Black Japanned	White Japanned Oak Lacquered Finishes	Oxidized Copper	Electro- plated Brass- Bronze, Nickel
86	10x12	\$4.00	\$4.60	\$5.75	\$6.35
103	11x13	4.50	5.25	6.75	7.50

#### No. 155 1/4—Depth, 5 1/8 Inches

Free Air Capacity Face Sq. In.	Size	Black Japanned	White Japanned Oak Lacquered Finishes	Oxidized Copper	Electro- plated Brass- Bronze, Nickel
103	11x13	\$5.25	\$6.00	\$7.50	\$8.25
121	12x14	6.50	7.50	8.50	9.50

#### No. 161 1/4—Depth, 1 Inch

Free Air Capacity Face Sq. In.	Size	Black Japanned	White Japanned Oak Lacquered Finishes	Oxidized Copper	Electro- plated Brass- Bronze, Nickel
55	8x10	\$2.00	\$2.35	\$3.50	\$3.85
68	8x12	2.40	2.90	3.95	4.35
78	9x12	2.50	3.00	4.00	4.40

#### No. 162 1/4—Depth, 2 1/4 Inches

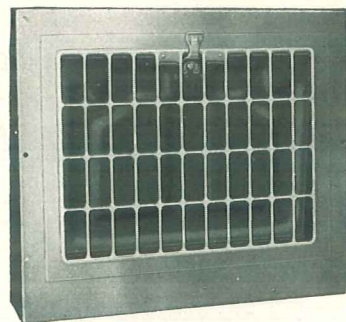
Free Air Capacity Face Sq. In.	Size	Black Japanned	White Japanned Oak Lacquered Finishes	Oxidized Copper	Electro- plated Brass- Bronze, Nickel
55	8x10	\$2.00	\$2.35	\$3.50	\$3.85
68	8x12	2.40	2.90	3.95	4.35
78	9x12	3.00	3.50	4.50	4.90

#### No. 163 1/4—Depth, 3 1/4 Inches

Free Air Capacity Face Sq. In.	Size	Black Japanned	White Japanned Oak Lacquered Finishes	Oxidized Copper	Electro- plated Brass- Bronze, Nickel
86	10x12	\$4.00	\$4.60	\$5.75	\$6.35
103	11x13	4.50	5.25	6.75	7.50

#### No. 165 1/4—Depth, 5 1/8 Inches

Free Air Capacity Face Sq. In.	Size	Black Japanned	White Japanned Oak Lacquered Finishes	Oxidized Copper	Electro- plated Brass- Bronze, Nickel
103	11x13	\$5.25	\$6.00	\$7.50	\$8.25
121	12x14	6.50	7.50	8.50	9.50



160 Series  
Non-Detachable Face

Floor Registers, page 76.







# EXCELSIOR STOVE & MANUFACTURING COMPANY

## LIST PRICES

### No. 171 1/4—Depth, 1 1/4 Inches

Free Air Capacity Face Sq. In.	Size	Black Japanned	White Japanned Oak Lacquered Finishes	Oxidized Copper	Electro-plated Brass—Bronze, Nickel
63	8x10	\$2.00	\$2.35	\$3.50	\$3.85
78	8x12	2.40	2.90	3.95	4.35
88	9x12	2.50	3.00	4.00	4.40

### No. 172 1/4—Depth, 2 1/4 Inches

63	8x10	\$2.00	\$2.35	\$3.50	\$3.85
78	8x12	2.40	2.90	3.95	4.35
88	9x12	3.00	3.50	4.50	4.90

### No. 173 1/4—Depth, 3 1/4 Inches

78	8x12	\$3.00	\$3.50	\$4.50	\$4.90
98	10x12	4.00	4.60	5.75	6.35
107	10x13	4.20	5.00	6.20	7.00
118	11x13	4.50	5.25	6.75	7.50

### No. 174 3/4—Depth, 4 3/4 Inches

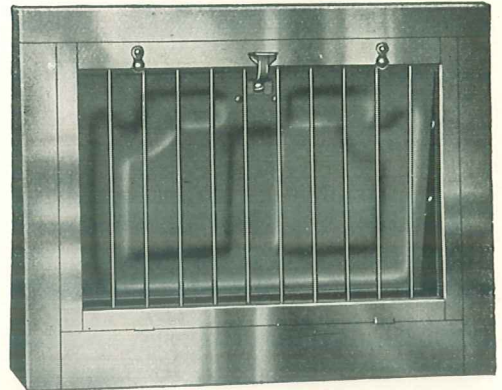
107	10x13	\$4.85	\$5.50	\$7.00	\$8.00
-----	-------	--------	--------	--------	--------

### No. 175 1/4—Depth, 5 1/8 Inches

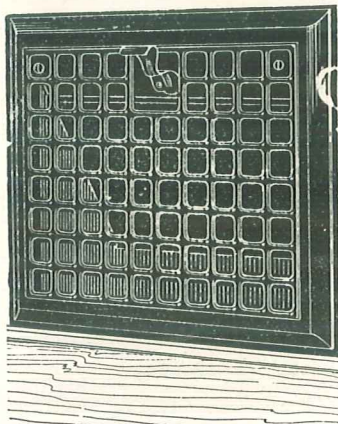
118	11x13	\$5.25	\$6.00	\$7.50	\$8.25
149	12x14	6.50	7.50	8.50	9.50

### No. 177 1/2—Depth, 7 1/2 Inches

149	12x14	\$9.00	\$10.00	\$12.00	\$12.50
-----	-------	--------	---------	---------	---------



No. 170 Series



No. 340 Sets—Horizontal

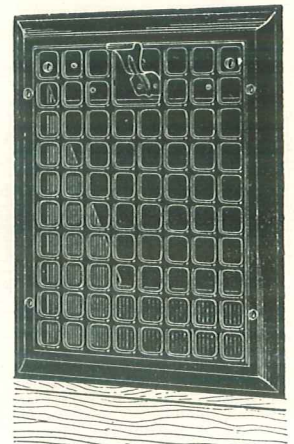
## Single Valve—Convex Face

### LIST PRICES

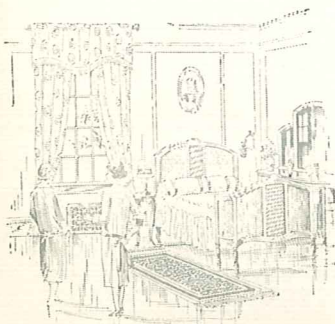
#### No. 340 and No. 350

Size	Black Japanned	White Japanned	Oxidized
8x10	\$1.65	\$2.00	\$3.15
8x12	1.90	2.30	3.65
9x12	2.10	2.55	4.00
10x12	2.40	2.90	4.40
10x14	3.15	3.80	5.25

Floor Registers, page 76.



No. 350 Sets—Vertical

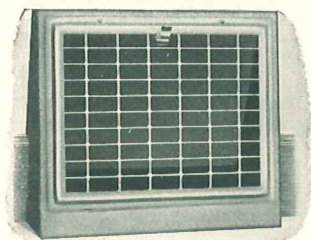




# NATIONAL STOVES, RANGES AND FURNACES



## Tuttle & Bailey Base Board Registers All-Steel, Two-Piece



No. 902—All Steel

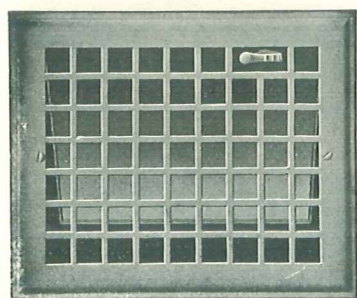


### LIST PRICES

No. 902

In Ordering, Specify		Black Japan	White Japan and the Tanbo Finishes	Plated, Oxidized Copper	Plated Nickel or Dull Brass
Outside Depth of Stack Head	Size of Opening Face				
6 $\frac{1}{8}$ "	8x10 (8)	\$2.00	\$2.35	\$3.50	\$3.85
6 $\frac{1}{8}$ "	8x12 (9)	2.40	2.90	3.95	4.35
6 $\frac{1}{8}$ "	9x12	3.00	3.50	4.50	4.90
7 $\frac{1}{8}$ "	8x12	3.00	3.50	4.50	4.90
7 $\frac{1}{8}$ "	9x12 (10)	3.00	3.50	4.50	4.90
7 $\frac{1}{8}$ "	10x12	4.00	4.60	5.75	6.35
7 $\frac{1}{8}$ "	11x13	4.50	5.25	6.75	7.50
9 $\frac{1}{8}$ "	11x13 (12)	5.25	6.00	7.50	8.25
9 $\frac{1}{8}$ "	12x14	6.50	7.50	8.50	9.50

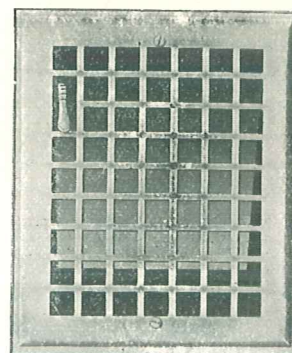
## Tuttle & Bailey Reversible Wafer Register, All Steel



Reversible Wafer Sets—Horizontal

Size	Black Japanned	White Japanned and Tanbo Finishes	Oxidized Copper	Electro- plated, Brass Nickel
8x10	\$1.65	\$2.00	\$3.15	\$3.85
8x12	1.90	2.30	3.65	4.40
9x12	2.10	2.55	4.00	5.10
10x12	2.40	2.90	4.40	5.50
10x14	3.15	3.80	5.25	6.55
12x14	4.35	5.25	6.85	8.25
12x15	4.50	5.40	7.00	8.50

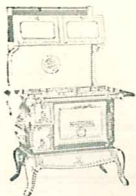
Floor Registers, page 76.



Reversible Wafer Sets—Vertical

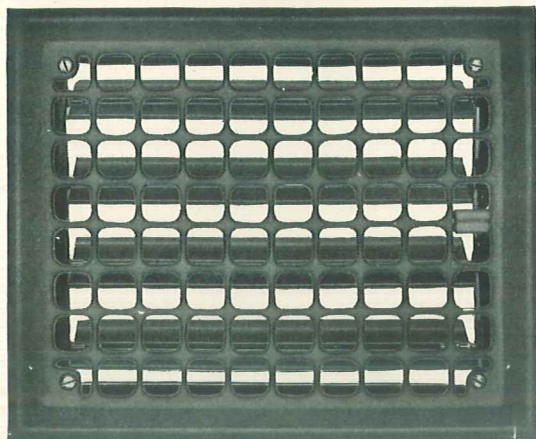




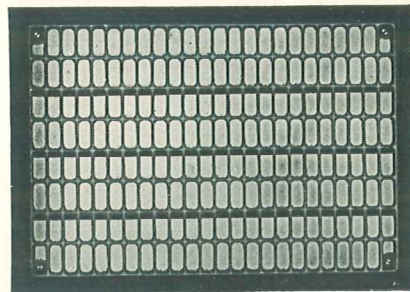


# EXCELSIOR STOVE & MANUFACTURING COMPANY

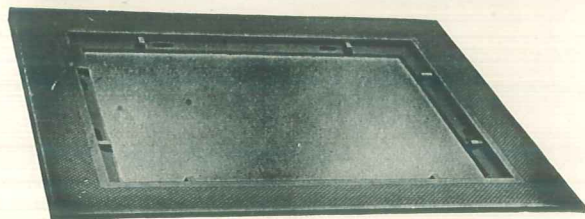
## Floor Registers



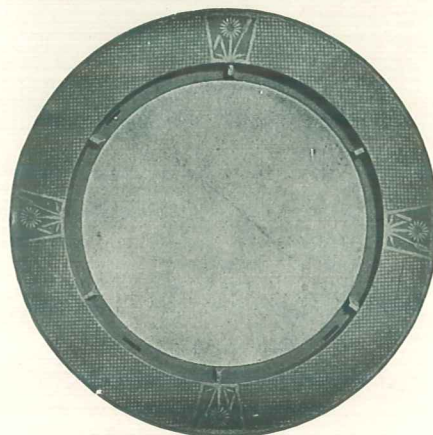
Floor Register



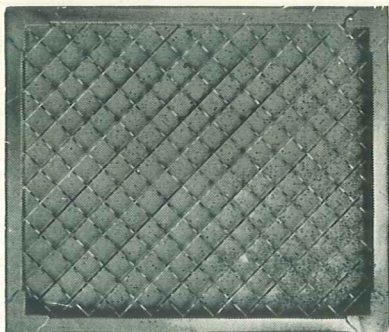
Register Face



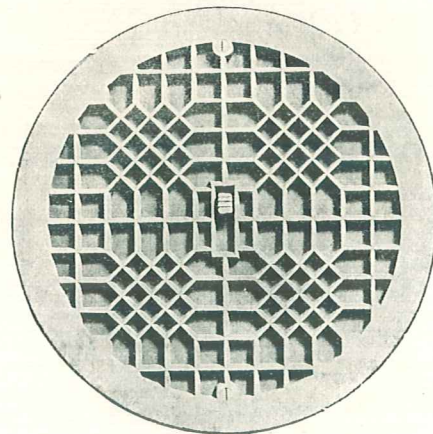
Floor Border



Cast Round Floor Border



No. 127 Wire Grill



Cast Round Floor Register

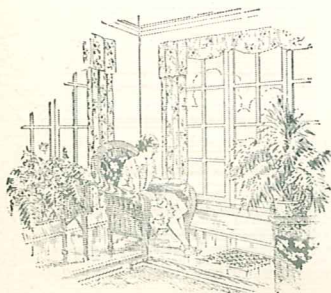
### No. 127 Wire Grill

These Grills are made with angle frames. Any size or finish can be furnished.

No standard lists. Prices quoted on specifications.

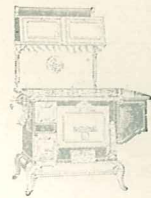
When ordering, give dimensions of the opening to be covered.

See register prices opposite page.





# NATIONAL STOVES, RANGES AND FURNACES

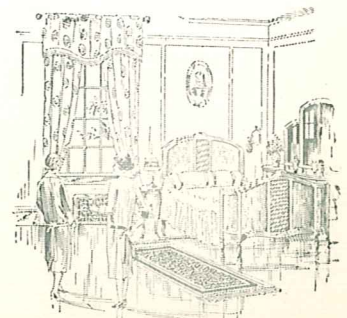


## Standard List Prices

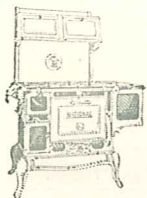
Size of Opening	JAPANNED BLACK			JAPANNED WHITE		ELECTRO-PLATED						
	Register	Register Face	Floor Border	Register	Register Face	OXIDIZED COPPER			BRASS, BRONZE, NICKEL			
						Register	Register Face	Floor Border	Register	Register Face	Floor Border	Capacity Square Inches
8x10	\$ 1.65	\$ 1.10	\$ 1.25	\$ 2.00	\$ 1.45	\$ 3.15	\$ 2.60	\$ 2.75	\$ 3.85	\$ 3.30	\$ 3.90	56
8x12	1.90	1.30	1.50	2.30	1.70	3.65	3.05	3.25	4.40	3.75	4.40	67
9x12	2.10	1.45	1.65	2.55	1.90	4.00	3.35	3.55	5.10	4.45	5.00	75
9x14	3.10	2.15	2.15	3.70	2.75	5.20	4.25	4.25	6.50	5.50	5.95	88
10x12	2.40	1.70	1.75	2.90	2.20	4.40	3.70	3.75	5.50	4.80	5.35	84
10x14	3.15	2.20	2.20	3.80	2.85	5.25	4.30	4.30	6.55	5.60	6.00	98
10x16	4.85	2.95	2.95	5.85	3.95	7.20	5.30	5.30	8.60	6.70	7.20	112
12x14	4.35	2.80	2.80	5.25	3.65	6.85	5.35	5.35	8.25	6.75	7.35	118
12x15	4.50	2.90	2.90	5.40	3.80	7.00	5.40	5.40	8.50	6.90	7.60	126
12x16	5.60	3.50	3.50	6.70	4.60	8.25	6.15	6.15	9.75	7.65	8.25	134
12x20	9.00	4.50	4.50	10.80	6.30	12.20	7.60	7.60	14.10	9.50	9.90	168
14x14	7.90	4.05	4.05	9.45	5.60	11.00	7.15	7.15	14.30	9.60	10.00	137
14x16	8.50	4.30	4.30	10.20	6.00	11.50	7.30	7.30	16.50	11.00	11.00	157
14x18	9.00	4.50	4.50	10.80	6.30	12.00	7.50	7.50	18.50	12.00	12.15	176
16x18	12.00	5.30	5.30	13.20	6.50	16.20	9.50	9.50	22.25	14.25	13.25	213
16x20	12.35	6.10	6.10	13.60	7.35	16.55	10.30	10.30	24.60	16.00	14.00	237
16x24	15.00	7.00	7.00	16.50	8.50	20.00	12.00	12.00	29.60	19.25	17.10	284
18x20	19.50	7.60	7.60	21.45	9.55	24.75	12.85	12.85	29.00	18.00	17.00	267
18x24	21.50	8.35	8.35	23.65	10.50	27.75	14.60	14.60	34.25	22.50	18.75	319
18x36	38.00	17.25	17.25	41.80	21.05	48.50	28.10	26.00	54.00	36.00	28.00	480
20x22	21.60	8.40	8.40	23.75	10.55	27.60	14.40	14.40	35.70	23.50	19.00	326
20x24	22.00	8.60	8.60	24.20	10.80	28.20	14.80	14.80	39.00	25.50	21.70	355
20x26	23.50	9.50	9.50	25.85	11.85	32.00	17.50	17.50	42.00	27.50	22.00	385
20x28	28.90	11.50	11.50	31.80	14.40	37.40	20.00	20.00	45.50	30.00	24.50	415
22x24	29.50	11.80	11.80	32.45	14.75	37.90	20.20	20.20	44.00	29.00	23.00	390
22x26	31.00	13.10	13.10	34.10	16.20	41.00	23.00	23.00	48.00	32.00	25.50	424
22x28	33.90	13.90	13.90	37.30	17.30	44.00	24.00	24.00	52.00	34.00	27.50	455
24x24	30.00	12.00	12.00	33.00	15.00	40.00	22.00	22.00	49.00	32.50	26.00	426
24x27	33.95	14.00	14.00	37.35	17.40	45.00	25.00	25.00	56.00	37.00	29.00	479
24x30	38.00	17.25	17.25	41.80	21.05	50.00	29.25	28.25	62.00	41.50	32.00	532
24x36	50.00	22.00	22.00	55.00	27.00	65.50	37.50	34.25	74.00	50.30	36.50	640
28x28	44.00	19.00	19.00	48.40	23.40	57.50	32.50	31.00	72.00	49.00	36.40	589
30x30	49.00	21.50	21.50	53.90	26.40	65.00	37.00	34.00	85.00	56.00	41.00	674
30x36	67.50	28.50	28.50	74.25	35.25	90.00	51.00	41.00	102.00	70.00	48.00	809
30x42	77.50	33.00	29.00	85.25	40.75	102.00	57.50	50.50	119.00	87.00	60.00	944
36x36	80.00	35.00	29.50	88.00	43.00	105.00	60.00	54.50	127.00	83.00	66.00	970
36x40	105.00	44.00	32.10	115.50	54.50	135.00	74.00	62.10	142.00	95.00	76.00	1080
36x48	132.00	54.00	40.00	145.20	67.20	168.00	90.00	76.00	173.00	103.00	87.00	1295
38x42	120.00	50.00	36.00	132.00	62.00	155.00	85.00	71.00	160.00	100.00	83.50	1200

## ROUND FLOOR REGISTERS—ALL CAST

	\$ 11.00	\$ 5.10	\$ 5.10	\$ 12.20	\$ 6.20	\$ 15.00	\$ 9.10	\$ 9.10	\$ 19.75	\$ 12.80	\$12.50	
16												100
18	18.50	7.20	7.20	20.35	9.05	23.75	12.45	12.45	26.00	16.50	15.00	127
20	19.75	8.00	8.00	21.75	10.00	24.75	13.00	13.00	32.40	21.20	18.10	157
24	30.00	12.00	12.00	33.00	15.00	40.00	22.00	22.00	49.00	32.50	26.00	226
28	44.00	19.00	19.00	48.40	23.40	57.50	32.50	31.00	72.00	49.00	36.40	308
30	49.00	21.50	21.50	53.90	26.40	65.00	37.00	34.00	85.00	56.00	41.00	353
36	80.00	35.00	29.50	88.00	43.00	105.00	60.00	54.50	127.00	83.00	66.00	509

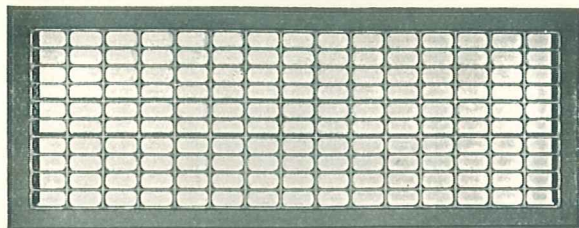






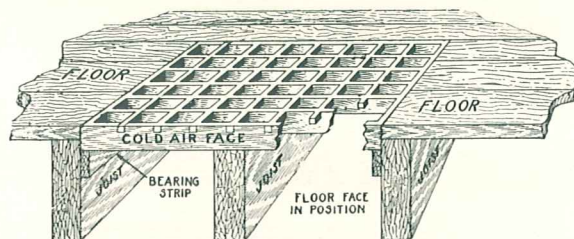
# EXCELSIOR STOVE & MANUFACTURING COMPANY

## Steel Register Faces For Cold Air Ducts



No. 255

## Wood Register Faces For Cold Air Ducts



The above cut shows how to properly install our Wood Registers.

Note—They are set level with the flooring.

### LIST PRICES No. 255

Size	Air Capacity, Square Inches	Pipe, Inches	Pipe Capacity	Black Japanned	Oak Finish	Electroplated	
						*Oxidized Copper	*Nickel Brass Bronze
12x14	126	12	113	\$2.50	\$3.00	\$4.50	\$5.00
8x30	180	14	154	3.60	3.85	5.50	7.50
10x24	180	14	154	3.60	3.75	5.00	6.50
10x30	225	16	201	3.75	4.25	5.75	8.50
12x24	216	16	201	3.75	4.00	5.50	8.00
12x30	270	18	254	4.00	4.50	6.00	9.00
14x30	313	20	314	4.50	5.00	9.00	11.00
16x30	360	20	314	5.50	6.00	9.50	11.25
18x30	405	22	380	5.75	6.50	10.00	11.50
20x30	450	24	452	6.00	7.00	10.50	12.00
24x30	540	26	530	9.50	10.00	15.00	20.00

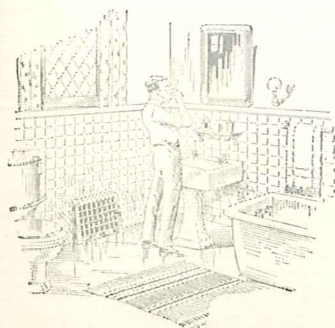
This type of face is light and yet of ample strength in sizes listed. The braces are riveted to heavy angle plates which are welded to the face, and not detachable. The air capacity is large. Though heavily braced for floor use, these faces may be used in side wall also. Quickly installed, and, when cost of fitting other types of faces is considered, will prove the lowest in cost when installed. Durable and unbreakable.

### LIST WOOD FACES

Size	List	Area of Air Sq. Inches	Nearest Size Rd. Pipe	Size	List	Area of Air Sq. Inches	Nearest Size Rd. Pipe	Size	List	Area of Air Sq. Inches	Nearest Size Rd. Pipe
10x30	\$2.09	180	16	14x48	\$4.67	403	22	18x48	\$6.00	520	26
10x40	2.78	240	16	16x20	2.22	192	16	20x20	2.78	240	16
10x48	3.34	288	18	16x24	2.67	230	16	20x24	3.33	316	20
12x20	1.67	144	14	16x30	3.34	288	18	20x26	3.61	300	20
12x24	2.00	173	14	16x40	4.45	384	22	20x30	4.17	360	22
12x30	2.50	216	16	16x48	5.34	460	24	22x30	4.60	396	22
12x36	3.00	260	18	18x20	2.50	216	16	24x24	4.00	345	20
12x40	3.34	288	18	18x24	3.00	259	18	24x30	5.00	432	24
12x48	4.00	346	22	18x26	3.25	280	18	24x36	6.00	518	26
14x20	1.94	168	14	18x30	3.75	324	20	26x34	6.14	530	26
14x24	2.33	202	16	18x36	4.50	388	22	30x30	6.25	540	26
14x30	2.92	252	18	18x44	5.50	457	24	30x36	7.50	648	28

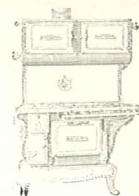
Any size up to 36x48 can be furnished to order.

These hardwood Register Faces for cold-air ducts are made of oak strips. The square strips are let into the larger strips which makes the top of the face level.

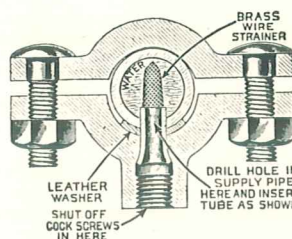
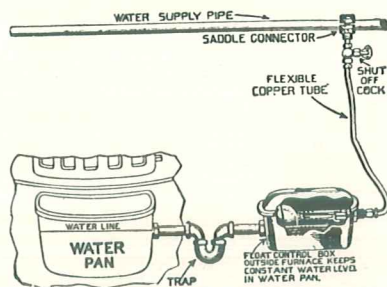




# NATIONAL STOVES, RANGES AND FURNACES



## Skuttle Improved Automatic Humidifier



The Skuttle Improved Automatic Humidifier unit comprises Brass pan and cover, adjustable float, and interchangeable valve seat, pan brackets for attaching to furnace, five feet  $\frac{1}{4}$ " copper tubing, saddle pipe connector for attaching to main water line, with needle shut-off valve attached, brass connector for attaching to float valve by means of tubing, pipe trap for hookup with furnace water pan, necessary lock nuts, leather washers, and screws. This comprises the complete unit for general hookup and no other fittings are required.

The Skuttle Improved Automatic Humidifier is to be used in connection with the water evaporating pan in any Furnace, and its purpose is to keep the water pan filled with water at all times without any additional care in the operation of Furnace. It is connected directly with the city water or any other water supply and the New Improved Valve has perfect control over the flow of water.

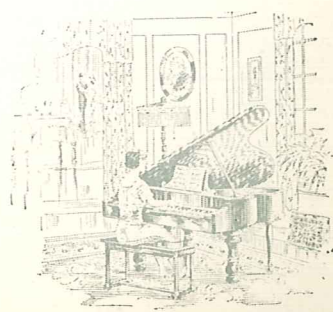
Moisture must be added to indoor heated air if healthful conditions are to be maintained. Atmosphere in homes tested, shows an average from 22 per cent to 30 per cent moisture, while the desert of Sahara has 33 per cent.

Dry warm air with its radio-activity destroyed, produces catarrh, swollen tonsils, adenoids, diphtheria and the whole vile troop of foul air diseases. The life of the air is stricken from it as well as those who have to breathe it.

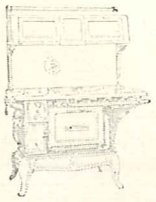
Hot, dry air at 72 degrees will cause a chilly, uncomfortable feeling, while the same room at a temperature of 62 degrees with plenty of fresh humidified air will be more pleasant, comfortable and healthful.

Experience shows that it takes from fifteen to twenty quarts of water a day to maintain 50 per cent moisture in the average home on a cold day.

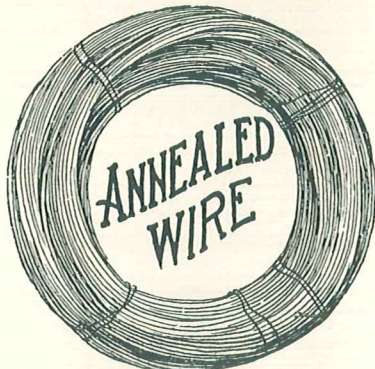
Many furnace users neglect to fill the water pan regularly. The Skuttle Improved Automatic Float Valve supplies all the water required and overcomes any such oversight. It is to be used in connection with the evaporating or water pan on any Furnace and keeps the water pan filled at all times.







# EXCELSIOR STOVE & MANUFACTURING COMPANY



No. 18 Gauge Wire

12 Pounds to the Stone

Per Stone.....each \$.....  
Price



Asbestos Cement

Mixed Ready for Use

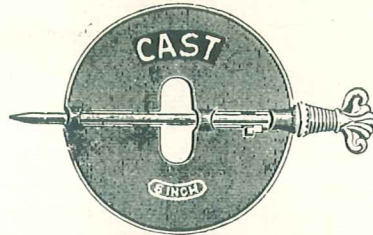
1-Pound Can.....each \$.....  
2-Pound Can.....each .....  
3-Pound Can.....each .....  
5-Pound Can.....each .....  
10-Pound Can.....each .....  
Price



Asbestos Dry Paste

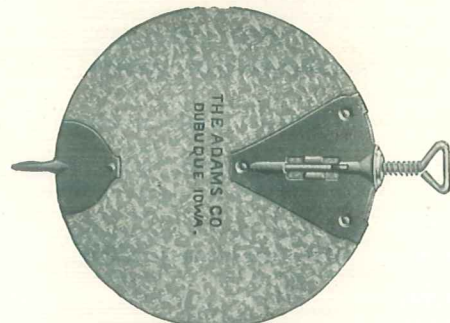
For Pasting Asbestos Paper on Furnace Pipes, Etc.,  
Mix with Cold Water to a Paste

2½-Pound Bag.....\$.....  
5 -Pound Bag.....  
10 -Pound Bag.....  
Price



Smoke Pipe Dampers

Inches		Price
8.....	dozen	\$.....
9.....	dozen	.....
10.....	dozen	.....
12.....	dozen	.....
14.....	dozen	.....
15.....	dozen	.....
16.....	dozen	.....



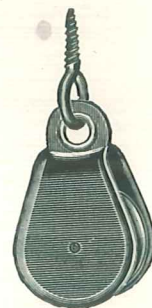
No Rivet Damper Clips

	Price
Clips without Tail Pieces.....dozen	\$.....
Clips with Tail Pieces.....dozen	.....



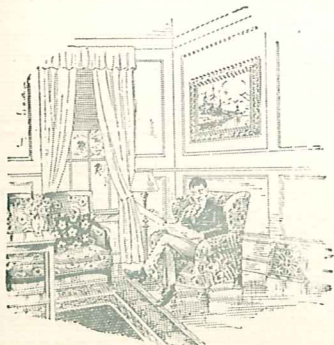
Furnace Chain

Per 12-Yard Box.....each \$.....  
Price



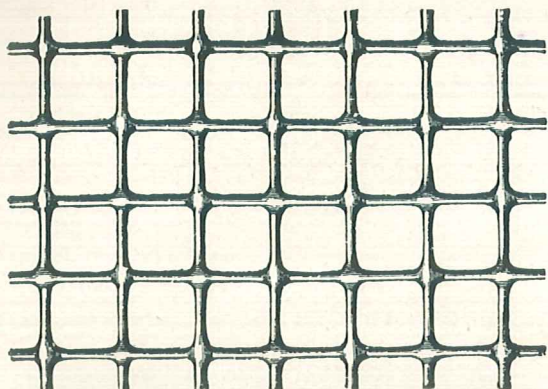
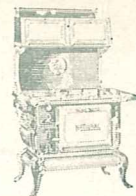
Encased Pulley

Per Dozen.....\$.....  
Price





# NATIONAL STOVES, RANGES AND FURNACES

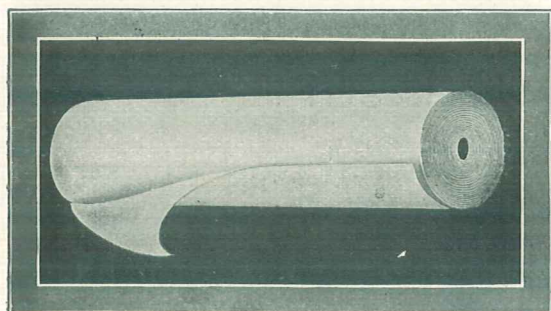


## Wire Netting in Rolls

For Covering Outside Cold Air  
Duct Openings

Width, 30 Inches

Per Square Foot..... Price  
\$.....

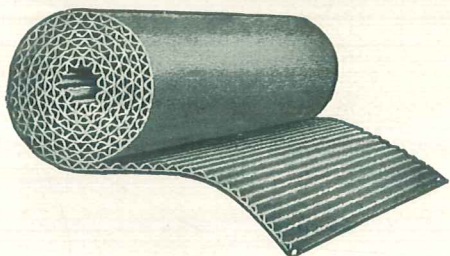


## Asbestos Paper in Rolls

For Covering Furnace Pipes

Width of Rolls 18 and 36 Inches  
In 50- and 100-lb. Rolls

Price  
1/32-inch Thickness; per 100 lbs.....\$.....  
1/16-inch Thickness; per 100 lbs.....\$.....  
No. 12—12 lbs. to 100 square feet.....\$.....



## Asbestocel in Rolls

A Plain and Corrugated Sheet of  
Asbestos Paper Fastened Together

For Covering Furnace Pipes, Should Be Wired on

Width, 36 Inches

Rolls Contain Approximately 250 Square Feet

Price  
1-Ply about 1/4-inch thick; per square foot.....\$.....



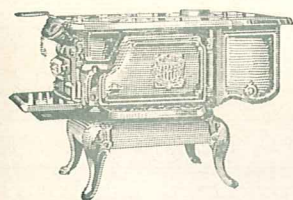
## Globe Water Heater

Attached to any warm-air furnace or steam heater, will heat water for domestic use. Its position in heater is just above the fire. No place for coal to lodge. Does not interfere in adding fuel to the fire.

Number	Diameter in Inches	Size Pipe	Capacity Gallons Per Hour	Price
80	8	1 in.	40 to 50	\$.....
90	9	1 in.	50 to 60	.....







# EXCELSIOR STOVE & MANUFACTURING COMPANY

Style "D"

## Fireplace National

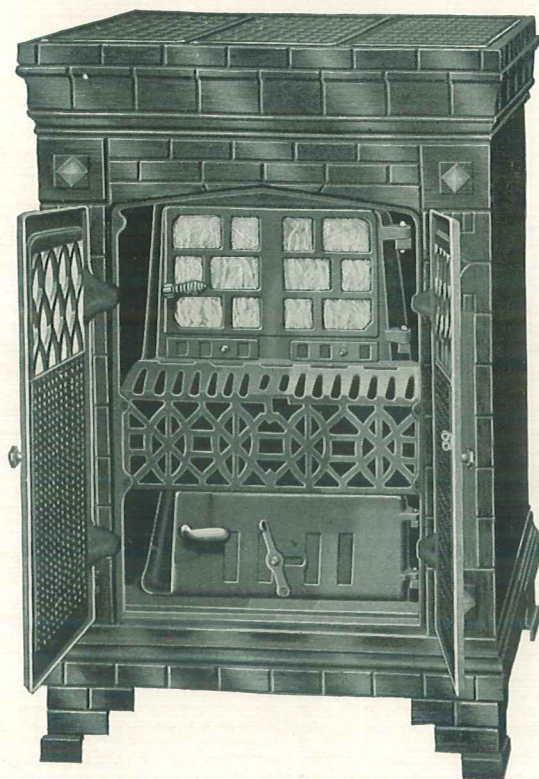
For Hard Coal, Soft Coal or Wood

With Casing Door

Walnut Finish

There Is an Unforgettable Satisfaction  
Found in the Sale of NATIONALS

Furnace Comfort at Stove Price  
Finished in Walnut Hand Grained Vitreous  
Porcelain Enamel



Style "D" Casing Doors Open

Fireplace Nationals add comfort and attractiveness  
to their surroundings.

They Give Maximum Heat with Minimum Fuel



Style "D" with Casing Doors Closed

### DETAIL

No.	Size Fire Pot	Size Top Grille Opening	Size Casing	Height Over All	Size Feed Door	Shipping Weight	Height Floor to Pipe Collar	Price	Code Word
D-21W	20½x14½	22¼x28½	24½x28½	46	9¼x14	465	45	\$.....	Heated

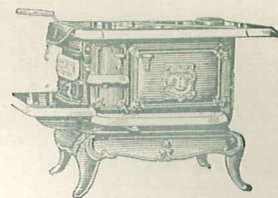
Description, Pages 83 to 85

NATIONAL HEATERS SAVE FUEL





# NATIONAL STOVES, RANGES AND FURNACES



## Fireplace National

For Hard Coal, Soft Coal, Coke or Wood

### Description

**Construction**—FIREPLACE NATIONAL is an entirely new-designed, tile effect porcelain vitreous everlasting enameled heater. Finished in elaborate walnut grained by hand, artistic in appearance and most beautiful. To obtain a durable enamel it is essential to use iron that contains the proper mixture to insure the lustre and durable finish, so much desired by the user. Fireplace National meets these requirements, since all material entering into the construction is analyzed by a competent chemist. The FIREPLACE NATIONAL system of heating is the same as used in the National schoolroom heaters, which conforms with the principles of heating engineers and medical authorities in that it provides a continuous renewal of air. Its heating efficiency is far superior to many so-called circulators, due to the construction and large opening between heater and casing. The large feed door enables the user to fuel heater conveniently either with coal or wood and is in keeping with the ideas advanced by experienced users of heaters of this type. An enameled water pan properly and conveniently located in the rear of heater, not only insures proper humidity necessary to health and comfort, but prevents many of the ills and discomforts traceable to the lack of proper atmospherical moisture in rooms. Experience has taught us that smooth enamel is more sanitary than stucco type, retains its beauty during life of heater and is easier to keep clean. Fireplace National is not merely a casing placed around an obsolete stove, but is new throughout and constructed along scientific lines, passed on by the foremost stove builders in the world. The air is taken off from the floor and comes in contact with the inner all-cast body and passes into the rooms through the large grills on top in a highly heated state. Equipped with a seven-inch cast elbow which will permit the smoke pipe to be attached to top or rear of heater without any extra parts. Mounted on sanitary removable base, an advantage over the leg bolted type. The large mica door permits user to enjoy the cheerful glow of an open fireplace at all times. Heater is assembled with a special asbestos cement which insures smoke, gas and air tight joints. Ash pan is exceptionally large and in a convenient place.

**Fire Pot**—The fire pot is of the new constructed oblong type, exceptionally deep and heavy, reinforced with bars on inside and corrugated on outside to allow for the expansion and contraction necessary in heaters of this type. Self-sealing asbestos cement joints are used and fire pot is held in place by four suitable bolts which makes for durable construction.

**Body**—The inside body is made of analyzed grey iron with extra reinforcing ribs which perform the office of increasing the life of the casting and adds heating efficiency. The dome is cast in two sections which permits the proper expansion and contraction of the iron and prevents cracking.

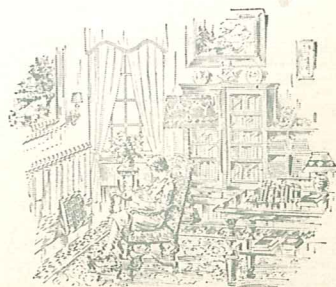
**Casing**—Casing consists of three sections of porcelain enameled steel panels, beautifully hand-grained in walnut finish and a work of art. An exceptionally large space is provided between casing and inner cast body to allow a free and unobstructed flow of air. The casing front is all cast-iron made in sections with two outside open work doors, enameled inside and outside, fitted with elaborate designed steel panels.

**Grates**—The National duplex grate, made without a grate frame, a bar on each end serves all requirements. Can be mounted through ash pit opening and by simply reversing them, forms a perfect wood grate.

**Evaporating Pan**—A one-piece porcelain-lined water pan (clean as a china dish) is furnished with all Fireplace Nationals. It is demountable for cleaning and in a convenient place to fill with water. Sufficient amount of heat permits the evaporation of large quantities of water, thereby keeping the air in the rooms in a pure and healthful state.

**Doors**—The feed door is made with invisible hinges and proper mica holders, with separate door panel properly ventilated to protect the enamel. Extra perforated tin is placed in the door to protect mica. Door is ground and fitted to a paper tight test joint and held in position with a suitable turnkey. The ash door and ash pit base are surfaced ground to a paper test tight joint and will remain absolutely tight.

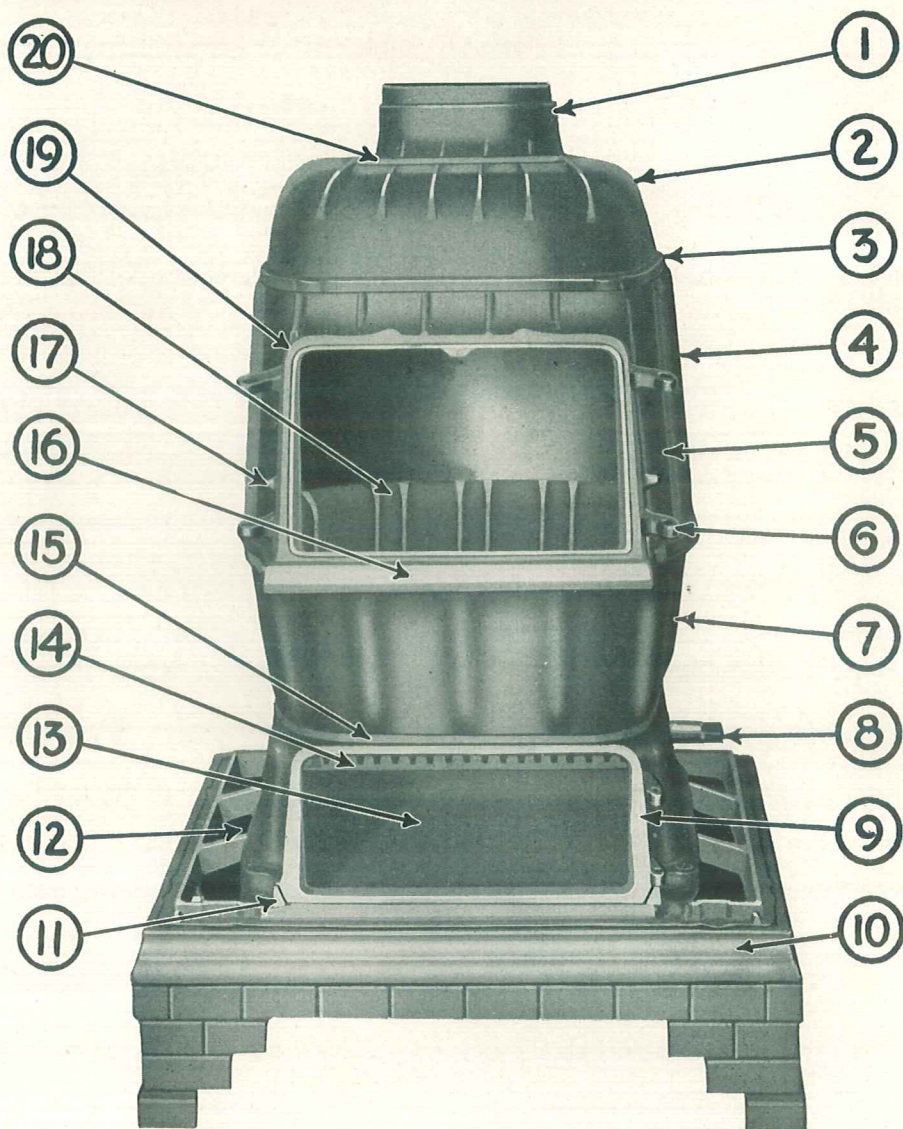
NATIONAL CIRCULATING HEATERS  
ARE THE HIGHEST GRADE







# EXCELSIOR STOVE & MANUFACTURING COMPANY

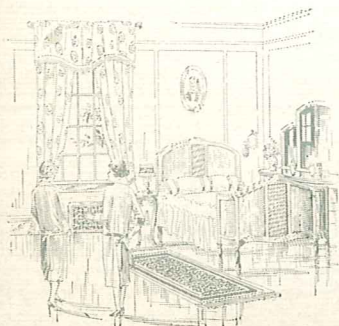


Phantom View

## Fireplace National

For Numerical Description See Opposite Page

NATIONAL HEATERS DO SATISFY





# NATIONAL STOVES, RANGES AND FURNACES



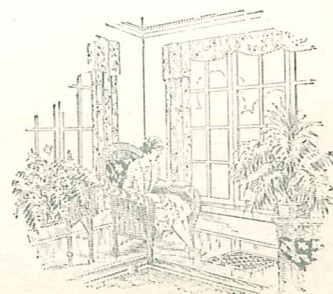
## Description

### Phantom View Opposite Page

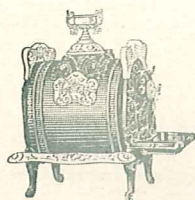
- 1 Reversible Collar Plate**—A convenience for connecting stove pipe to low flue opening; horizontally or vertically, as location of flue necessitates.
- 2 Extra Heavy Flanged Reinforced Upper Dome Section**—Permits free expansion and contraction and prevents fire cracking. The flanges reinforce and add greatly to the dome's heat radiating surface.
- 3 Double Cup Sealing Joints**—Gas, ash dust, and smoke tight. A positive preventive of leakage.
- 4 Extra Heavy Lower Dome Section**—Made exceptionally large to provide a perfect combustion chamber and increases the efficiency of heater.
- 5 Iron Ribbed Reinforcements**—These are scientifically placed throughout the heater, strengthening its construction and increasing its durability and radiating capacity.
- 6 Bolted Door Hinges**—Permit proper adjustments at all times. Most satisfactory and cannot warp. Economical in event of replacement.
- 7 Extra Heavy Advanced Corrugated Fire Pot**—Constructed and designed especially for circulating heaters. Reinforced with heavy semi-cylindrical ribs, spaced proportionately around outside of fire pot to insure greatest strength, lasting qualities, and maximum heat radiating surface.
- 8 Shaker Grate Handle**—Is of ash dust proof construction. Located on outside of ash pit base. Most convenient to attach shaker without the opening of doors.
- 9 Ash Pit Base**—To which ash door is attached, is surfaced ground insuring a "Paper-tight test fit."
- 10 Sanitary Removable Base**—Sturdy in construction, superior to the leg bolted type, of proper height, and admits unobstructed flow of cold air from floor to ventiduct flues.
- 11 National Improved Self-Sealing Cup Joints**—Make certain a gas, ash dust, and air tight ash pit.
- 12 Cast-Iron Inlet Opening to Warm Air Flue Travel**—Extends around base of heater, permits cold air entering at bottom to pass up between casing and heater through open cast warm air outlet at top of casing.
- 13 Ash Pit Opening**—Deep and roomy, accommodates extra large non-spilling ash pan.
- 14 National Duplex Grates**—Made extra heavy. One side for coal and reverse side forms a perfect flat wood grate. National duplex grates may be dumped without interference with fire. Grates can be easily removed through ash pit opening.
- 15 National Special Fire Pot Connecting Joints**—Constructed to allow for expansion or contraction and positively gas, ash dust, and air tight.
- 16 National Sanitary Fuel Guard**—Arranged on fire pot as a preventive of coal or ash dust from falling to floor when fueling.
- 17 Feed Door Stops**—Designed and fitted on each side of feed door opening. So constructed to come in contact with cast-iron plate guard on inside of feed door when open, and prevents marring the porcelain enamel on outside of feed door.
- 18 National Duplex Reinforced Ribs**—Scientifically located on inside of fire pot to warrant added strength and durability. A feature found in Nationals only.
- 19 Extra Wide Feed Door Fitting Surface**—With wide shoulder, insures a "paper-tight test fit" feed door.
- 20 One Piece Collar and Upper Dome**—The upper dome and upper half smoke collar are molded in one piece insuring a gas and smoke tight fitting in collar joint.

**Enameled Water Pan**—Not shown on cut

NATIONAL QUALITY AND EFFICIENCY







# EXCELSIOR STOVE & MANUFACTURING COMPANY

## National Guarantee

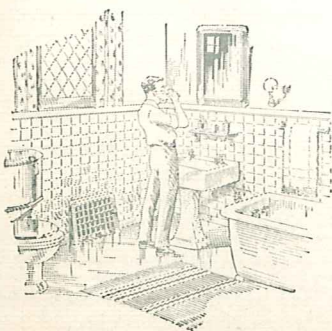
**W**E GUARANTEE National Warm Air Heating Furnaces to be made from the best materials possible to procure, by high-class mechanics, made exceptionally strong and heavy to withstand hard and constant usage, and to be the most economical in the use of fuel of any warm air heating furnace on the market.

We further guarantee that any National Warm Air Heating Furnace of ample size, when correctly installed according to plans prepared, submitted and O. K'd. by us, with the use of proper fuel, and by following directions for operating furnished with each NATIONAL WARM AIR HEATING FURNACE, will heat any properly erected building, during heating season, to 70 degrees.

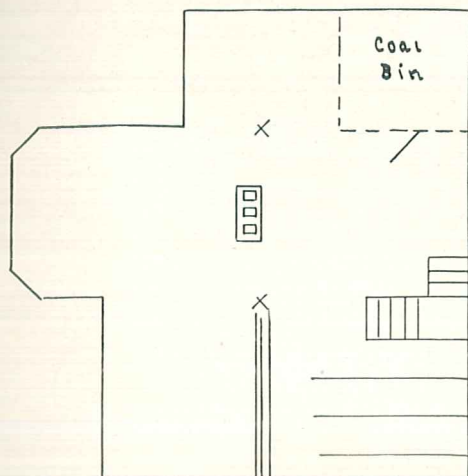
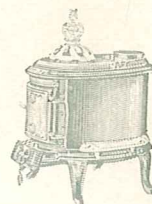
We also guarantee to furnish, free of charge, during the life of any National Warm Air Heating Furnace, any casting found defective due to either imperfect material or workmanship.

EXCELSIOR STOVE & MFG. CO.

JOHN J. FISHER,  
Pres. and Treas.



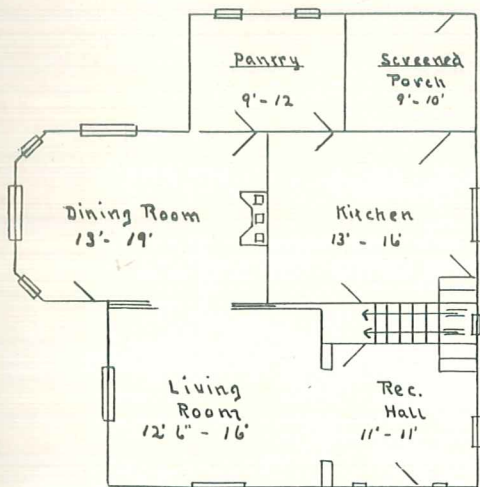




WEST SIDE  
Basement Plan

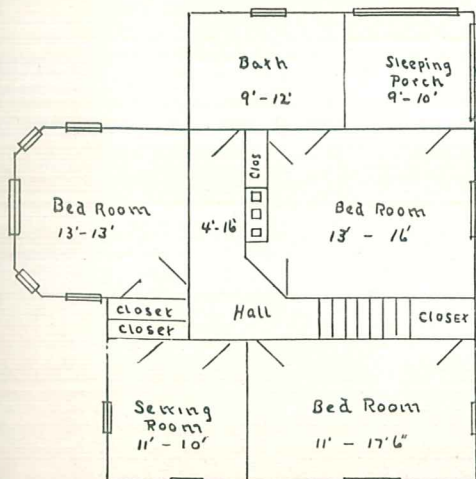
## Model as a Basis for Suggestion How to Draw a Plan for Furnace to Heat Your Building

Basement plan opposite is offered as a suggestion to help the dealer and customer to draw a sketch of building to be heated. The horizontal lines represent the direction in which joists run. The chimney location is necessary, while coal bin adds to convenience. If basement does not extend under entire house, dotted lines should be drawn to indicate its location. Give depth of basement from bottom of joist to basement floor.



WEST SIDE  
First Floor Plan

First-floor plan shown opposite gives size of rooms, location of windows, doors, stairway and pantry. Size of windows should be given, as well as ceiling height.

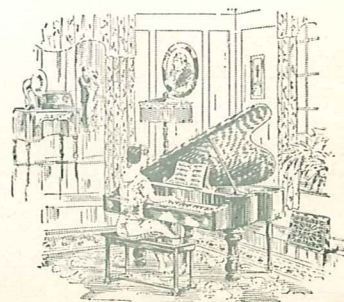


WEST SIDE  
Second Floor Plan

Second-floor plan shown opposite gives location of partitions and how they register with partitions on first floor. Dimensions of closets, hall and rooms are necessary, since without this information a complete plan cannot be made.

**Note**—The point of compass should be shown.

NATIONAL FURNACES  
ARE INSTALLED  
SCIENTIFICALLY







# EXCELSIOR STOVE & MANUFACTURING COMPANY

## Standard Code Regulating the Installation of Warm-Air Heating Furnaces in Residences

### ARTICLE No. 1

#### Meaning of the Term "Warm-Air Furnace Heating Plant"

Warm-air furnace heating plants, to which this code refers, shall consist of one or more warm-air furnaces, enclosed within casings, together with necessary appurtenances thereto, consisting of warm-air pipes and fittings, cold-air or re-circulating pipes, boxes and fittings, smoke pipes and fittings, registers, borders and face plates, the same being intended for heating buildings in which they may be installed.

### ARTICLE No. 2

#### Provisions to Be Made in Building Under Construction for Reception of Warm-Air Furnace Heating Plants

Section 1. (a) The following provisions shall be made by the owner or building contractor, in any building wherein a warm-air heating plant is to be installed.

(b) Where warm-air register boxes, heads, pipes or stacks are to be installed, joists shall be set not less than sixteen inches (16") on centers, and shall be butted and not lapped. Studding shall set directly over and under joists, leaving a space of not less than fourteen (14") inches between studs and joists. Wherever joists are cut, headers must be put in to support joists.

(c) All first-story single or sub-floors shall be continuous. In all houses having studded exterior walls, these floors shall be extended to the outside sheathing, and all spaces between studding shall be closed at the attic line.

**Note 1**—It is strongly recommended that the attic be tightly floored to reduce heat losses.

(d) All partition walls (or sections of these walls) in which heat stacks to second-floor rooms are to be installed, shall be built of six-inch (6") studding to second-story floor joists.

#### Chimneys

Section 2. (a) The owner shall provide a chimney for the furnace constructed in a manner to comply with the following specifications:

(b) The chimney must be absolutely smoke-tight throughout its entire length, and must extend at least three feet (3') above a flat roof or two feet above the ridges of peak roofs.

(c) If built of a single thickness of brick or of cement blocks, it shall be lined throughout its entire length with fire-clay flue lining, having not less than three-fourths inch ( $\frac{3}{4}$ ") thickness. Flue lining to be laid in mortar and made air-tight.

(d) The furnace flue must have no other opening for attaching any fireplace, furnace, stove, range, water heater, gas or ventilating connection.

(e) If necessary to offset the flue, it must be done in such a manner as not to reduce the cross-sectional area nor create a ledge or obstruction, where loose material may lodge.

(f) Its narrowest internal dimensions shall not be less than eight (8") inches and no flue smaller than 8" x 8" square or eight (8") inches diameter round will be considered suitable when hard coal is to be burned, or 8" x 12" rectangular or ten (10") inches round for soft coal or wood.

(g) It is strongly recommended that nothing less than 8" x 12" internal dimensions be used in any case.

**Note 2**—It is recommended that the height above the furnace grate be not less than twenty-six (26') feet.

**Note 3**—It is strongly recommended that all new chimneys be built in strict accordance with the ordinance recommended by the National Board of Fire Underwriters.

### ARTICLE No. 3

#### Method of Determining Size of Warm-Air Pipes, Wall Stacks and Furnaces for Use in a Residence

#### METHOD OF DETERMINING SIZE OF BASEMENT WARM-AIR PIPES

(Read Explanatory Notes 4 to 11)

Section 1. First-floor rooms.

Divide square feet of glass by 12.

Divide square feet of net outside wall by 60.

Divide cubic contents by 800.

Add together the above and multiply by 9.

The result is the area of the basement pipe.

$$\left\{ \begin{array}{l} \text{The sum of:} \\ \text{Glass (sq. ft.) (Note 4)} \div 12 \\ \text{Net Wall (sq. ft.) (Note 5)} \div 60 \\ \text{Cubic Contents} \div 800 \end{array} \right\} \times 9 = \text{Area of Basement Pipe (Note 10)}$$

Section 2. Second-floor rooms.

Divide square feet of glass by 12.

Divide square feet of net outside wall by 60.

Divide cubic contents by 800.

Add together the above and multiply by 6.

The result is the area of the basement pipe.

NATIONAL FURNACES ARE INSTALLED  
ACCORDING TO STANDARD CODE





# NATIONAL STOVES, RANGES AND FURNACES



$$\left\{ \begin{array}{l} \text{The sum of:} \\ \text{Glass (sq. ft.) (Note 4)} \div 12 \\ \text{Net Wall (sq. ft.) (Note 5)} \div 60 \\ \text{Cubic Contents} \div 800 \end{array} \right\} \times 6 = \text{Area of Basement Pipe (Note 10)}$$

Section 3. Third-floor rooms.  
Divide square feet of glass by 12.  
Divide square feet of net outside wall by 60.  
Divide cubic contents by 800.  
Add together the above and multiply by 5.  
The result is the area of the basement pipe.

$$\left\{ \begin{array}{l} \text{The sum of:} \\ \text{Glass (sq. ft.) (Note 4)} \div 12 \\ \text{Net Wall (sq. ft.) (Note 5)} \div 60 \\ \text{Cubic Contents} \div 800 \end{array} \right\} \times 5 = \text{Area of Basement Pipe (Note 10)}$$

## METHOD OF DETERMINING SIZE OF WALL STACKS

Section 4. First-floor rooms.

Same as Section 1.

Section 5. Second-floor rooms.

Deduct 30% from basement pipe area determined in Section 2.

Section 6. Third-floor rooms.

Deduct 30% from basement pipe area determined in Section 3.

## Explanatory Notes

**Note 4**—In obtaining glass surface, use full casement opening. An outside door is figured as glass.

**Note 5**—To obtain net outside wall, multiply height by width, and deduct the glass in all windows and outside doors.

**Note 6**—For rooms having unusual exposure, ordinarily north, northeast and northwest, add 15% to pipe area. For east and west exposure, add 10%.

**Note 7**—For cold ceilings, add one-half net area of ceiling to net exposed wall (cold ceilings are those next to unfloored attics).

**Note 8**—Use no warm-air pipe less than 8 inches in diameter. If a basement warm-air pipe figures greater area than any standard commercial size, then the next larger size shall be used.

**Note 9**—It is understood in using the above values for determining basement warm-air pipe areas, that these pipes should be run comparatively straight and that they should not be over 10 to 12 feet in length. Sharp turns and long pipes should have extra capacity.

**Note 10**—These formulae are for 70 degrees inside temperature with zero temperature outside. For a temperature of 10 degrees below zero, add 10% to the capacity of each pipe.

**Note 11**—The value of 800 (used in cubic contents) is for an estimated air change of 1 room volume per hour. If it is desired to provide for 1½ room volumes, use the figure 600. If for 2 room volumes, use the figure 400. "The factors 9, 6 and 5 in sections 1, 2 and 3 are calculated for a register air temperature of 175 degrees."

## Transition Fittings and Stacks

Section 7. Transition from warm-air pipes to stacks shall be made with a well-designed elbow or boot, and no stack shall be less than 70% of the warm-air pipe area.

## METHOD OF DETERMINING SIZE OF REGISTERS

Section 8. All registers shall have a free area at least equal to the calculated area of the basement pipe.

## METHOD OF DETERMINING SIZE OF FURNACE

Section 9. Add together the actual warm-air pipe area in square inches as obtained in Sections 1, 2 and 3, and select a furnace having a free area not less than the sum of all the warm-air pipe areas.

## ARTICLE No. 4

### Installation—Location of Furnace

Section 1. The location of the furnace shall equalize the length of warm-air runs as far as possible, yet give necessary preference to pipes supplying living-rooms, dining-rooms and main halls.

### Foundation

Section 2. Furnace foundation of brick, cement, or other incombustible material must be provided. Said foundation to extend at least fifteen (15") inches at rear and sides of furnace casing, and at least thirty-six (36") inches in front of furnace casing. Foundation to be level.

### Setting or Assembling of Furnace

Section 3. (a) The base ring of the furnace shall be cemented to the foundation, making an air-tight joint. The furnace parts shall be assembled plumb and level, and in a workmanlike manner.

(b) All sections and joints shall be properly fitted. Joints requiring cement shall be well filled, and all bolts shall be drawn up tightly.

### Casings

Section 4. (a) Warm-air furnaces shall be enclosed in metal casings or walls of brick, tile or concrete.

(b) Portable. Sheet-metal casings, including casing tops, shall be made of galvanized sheets, not lighter than 26-U. S. Standard Gauge. They shall fit castings and casing rings closely, so as to be dust-tight, and shall be securely fastened to the front. The casing shall be lined from the upper casing ring down to a line on a level with the grate.

(c) When side collars are used, the casing top must be of sufficient height so that the largest warm-air pipe can be taken from side without ovaling. In no case shall a distance less than eight (8") inches be maintained between the top of any furnace and the top of casing or bonnet.

(d) Any furnace, the casing top of which shall come within sixteen (16") inches of a combustible floor, ceiling or joist, shall be protected by a metal shield, extending not less than eighteen (18") inches beyond the casing of said furnace. This shield shall be suspended at least two inches below woodwork, allowing free air space

STANDARD CODE INSTALLATION,  
THE SAFE WAY







# EXCELSIOR STOVE & MANUFACTURING COMPANY

between shield and woodwork. No furnace casing or top, coming nearer than six (6") inches of ceiling or joists shall be allowed in any case.

(c) Openings for side casing collars shall be cut into the casing top, so that the tops of all openings are on a level. Casing collars shall be fitted into place with a proper flange, or bead, on the outside and drawn up on the inside, making a dust-tight joint. All collars shall be of same size as the warm-air pipes to which they are to be connected.

(f) Brick set, cement or hollow tile casing shall be constructed as follows: Walls shall be not less than eight (8") inches in thickness, and shall be constructed airtight. Rectangular casing shall be, with least inside dimensions, the same as that of the portable casing of a corresponding size of furnace. Walls shall be carried to the same height as the portable walls, allowing not less than eight (8") inches between the top of the furnace and the bottom of the top cover. After placing the collars for the warm-air pipes, continue the masonry up even with the top of the collars, lay spacing rods of bar iron on edge, or angle irons across the furnace top; cover these with sheet iron; cover the sheet iron with masonry, and run the side walls four (4") inches above the masonry bed. A galvanized-iron casing bonnet may be used on brick-set furnaces.

Provision shall be made in the walls for a manhole to give ingress to heater.

## Warm-Air Pipes in Basement

Section 5. (a) All warm-air pipes shall be made of bright tin not lighter than IC, or galvanized iron. Side seams shall be locked seams. All joints shall be either double-seamed or lapped not less than one and one-quarter ( $1\frac{1}{4}$ ") inches, and such joints shall be beaded and soldered or riveted. All pipes shall be properly secured to ceiling or joist. No solder or riveted joint is required where round pipe slips over the casing collar. Any pipe twelve (12") inches or greater in diameter shall not be made of material lighter than IX tin or No. 26 U. S. Standard Gauge galvanized iron.

**Note 12**—It is recommended that all warm-air pipes in the basement shall have an upward pitch of not less than one (1") inch per running foot.

(b) No warm-air pipe shall run within one (1") inch of any woodwork unless such woodwork is covered with asbestos paper and the paper covered with tin or iron.

(c) All warm-air pipes in the basement shall be provided with dampers not more than two feet from the casing.

(d) Where warm-air pipes pass through a masonry wall, a metal thimble shall be provided, having a diameter at least 1" greater than the pipe, and pipe supported in such a manner that the air space is uniform on all sides.

## Wall Stacks

Section 6. (a) Single Stacks. All single wall stacks for wall pipes, heads, boots, ells, tees, angles and other connections shall be made of bright tin or galvanized iron, and shall be covered with not less than one thickness of 12 lbs. per one hundred (100) square feet of asbestos paper. All studding and other woodwork facing said pipe shall be lined with metal and metal lath used in place of wood lath. An air space of not less than three-eighths ( $\frac{3}{8}$ ") of an inch shall be allowed on the two sides nearest the vertical studs. All such pipes shall be braced in a proper manner so as not to obstruct the flow of air, but to retain the full capacity throughout. All joints shall be locked and held in place by means of lugs, or straps. No joint shall depend wholly upon solder to make it tight.

(b) Double Stacks. All double wall stacks or wall pipes, heads, boots, ells, tees, angles and other connections shall be made of bright tin, not lighter than IC or galvanized iron, and shall be made double, from and including the boot or foot piece in basement to the top of each and every stack and register head on all floors. There shall be continuous, uniform air space of not less than five-sixteenths ( $\frac{5}{16}$ ") of an inch, which must be maintained between the outer and inner walls of all such pipes and fittings of all kinds, styles and descriptions; such pipes, heads, boots and other fittings to be of the styles, or equal to those accepted by the National Board of Fire Underwriters.

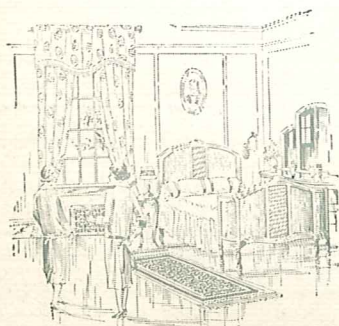
All pipes and fittings, either single or double, must be secured firmly in place by lugs or straps attached to the outer walls of stacks and fittings, and no nails shall be driven through these stacks or fittings at any point. No wall pipes or fittings shall be used which depend wholly on soldered joints. The various members shall be so made that all joints are locked and soldered, and the several members shall be attached to each other with slip joints, which are, for the purpose intended, air-tight.

## Registers

Section 7. (a) When base board or wall registers are used, they shall be properly and permanently attached to the stack head in such a manner that will prevent any leakage of air between the head and the register.

(b) Floor registers shall be provided either with register borders, or double-register boxes of tin or galvanized iron, with an air space of not less than five-sixteenths ( $\frac{5}{16}$ ") of an inch between inner and outer boxes.

(c) Registers for warm air and warm-air pipes shall not be located in outside walls. The warm-air registers in the various rooms shall be located in or near the inside walls in all cases.



NATIONAL FURNACE PLANS ARE  
STANDARD CODE



# NATIONAL STOVES, RANGES AND FURNACES



## Air Supply to Furnace

Section 8. (a) The air supply to furnace for warm-air heating plants may be taken from outside or from within the building, or may be taken partially from outside and partially from within. In no case, however, shall air be supplied to any furnace from any basement or furnace room.

(b) The cold-air intake or return where air is taken from within the building, shall have a net area throughout its entire length of not less than the combined net area of all warm-air pipes leading from the furnace. This may be maintained in one or more ducts.

(c) When the cold-air supply is taken wholly from the outside of the building, the supply duct at its most contracted area must equal or exceed eighty (80%) per cent of the combined area of all warm-air pipes leading from the furnace.

(d) Cold-air ducts shall be constructed of metal, tile or other incombustible material having smooth inner surface, and shall maintain a constant net area throughout their entire length, and shall be made air-tight. Where a boot or shoe is connected to the casing at the base, the opening shall not extend higher than a line of the level of the grate of the furnace. The width of the shoe shall be of proper measurement to make the area at least equal to that of the round or square pipe to which it is connected.

(e) Wherever the space between the joists is used to convey cold air over head, the joists and all wooden surfaces between such joists shall be lined with metal, and a sheet-metal pan constructed to extend not less than six (6") inches below said joists. The connection from this pan to the boot or shoe shall be made of galvanized iron not lighter than No. 26 U. S. Standard Gauge, and shall have a transition collar, the top area of which shall be at least 10% greater than the area of the connecting pipe.

(f) The cold-air face or faces shall be made of wood or metal. When set in floors, the top of same shall be flush with floor. Where cold-air face is placed in a seat or side wall (whether furnished by owner, general contractor or furnace contractor), the open work of face must extend to within at least one (1") inch of the floor line.

The free area of cold-air faces shall be at least 10% in excess of the free area of the duct or ducts to which they are connected.

**Note 13**—The effective area of a vertical cold-air face lies within twelve (12") inches of the floor line; hence, the capacity of any vertical cold-air face shall be determined by multiplying the base line in inches by not to exceed twelve (12") inches in height and deducting for the grills or cross bars.

## Smoke Pipes

Section 9. (a) The smoke pipe shall be as short and direct as consistent with the location of the furnace. It shall be made of either black or galvanized iron not lighter than No. 24 U. S. Standard Gauge, and of the full size of the collar on the furnace throughout its entire length. It must have no other opening for attaching any fireplace, stove, range, water heater, gas or ventilating connection. It shall be lock-seamed or riveted; all joints shall lap not less than one and one-half (1½") inches, and it shall be rigidly secured. Cast-iron smoke pipe may be used.

(b) Where the smoke pipe enters the flue, a thimble shall be cemented into the flue, and the connections thereto made air-tight. Should any smoke pipe come within eighteen (18") inches of any combustible material, such combustible material must be covered with asbestos paper and a metal shield so fastened that a two-inch air space exists between this shield and the combustible material. This shield shall be no less in size than twice the diameter of the smoke pipe and of sufficient length to cover the wood at all points.

(c) No smoke pipe shall project through any external wall or window.

## Pipeless or One-Pipe Furnace

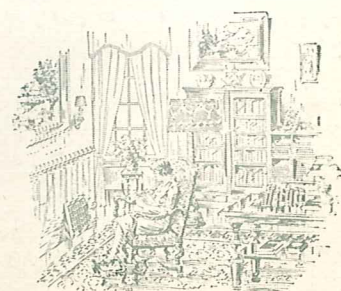
Section 10. (a) When but one duplex grating is used for both warm air and cold air in a so-called pipeless furnace, the area of the cold-air intake shall be at least equal to the area of the warm-air outlet of the grating. Article 4, Section 4, relative to casing shall not govern when this type of furnace is installed, but the following specifications shall be followed: The inner and outer casing of this type of furnace may be made of either black or galvanized iron not lighter than No. 26 U. S. Standard Gauge. A uniform air space shall be maintained at all points between the inner and outer casing. In no case shall the top of the furnace be allowed closer than twelve (12") inches to any ceiling or joists above the furnace.

(b) Where joists are cut to accommodate this furnace, headers shall be put in and braced so as not to weaken the structure of the floor above the furnace.

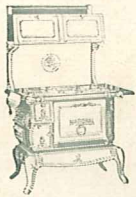
(c) Article No. 3 for determining area of warm-air pipe shall not govern in figuring a pipeless furnace.

(d) Where one warm-air register face is used and separate face or faces for cold-air supply are used, then Article No. 4, Section 5 and 8 shall apply.

STANDARD CODE MAKES NATIONAL  
FURNACE INSTALLATION INFALLIBLE







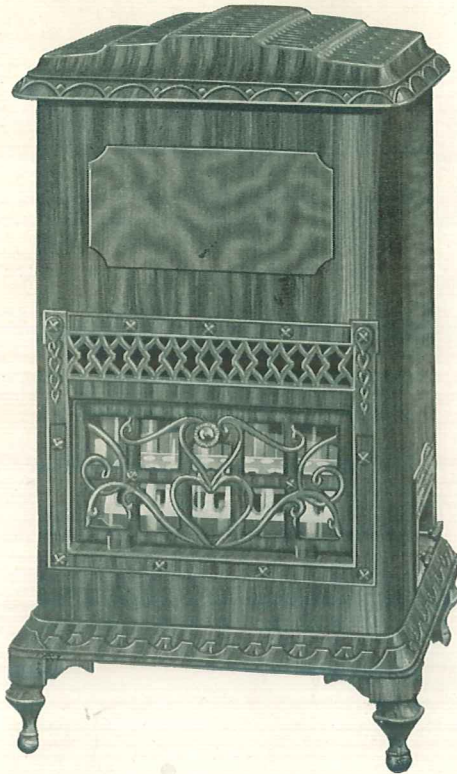
# EXCELSIOR STOVE & MANUFACTURING COMPANY

## National Gas Heater No. 6-3

### Warm Air Circulator With Concealed Manifold

For Manufactured or Natural Gas  
Burl-Walnut Porcelain Enameled Finish

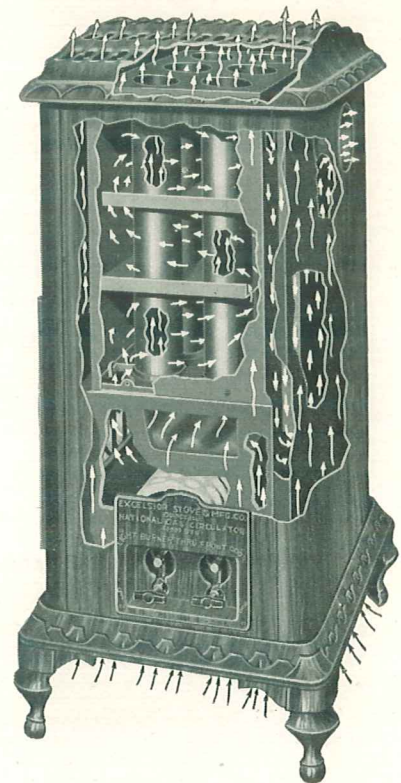
Description, Page 93



No. 6-3

Illustration of sectional view shows the exact inner construction of the NATIONAL gas circulator. The long arrows indicate the air drawn from the floor that passes between the inner units and casing through top, also the air drawn from floor over the burner box top into the tubes and discharged through fretwork top.

The short arrows indicate the gas heat passing out of burner box top around the inner tubes, where it is passed back and forth by series of baffle plates, entering the down flues at top and traveling downward within 8 inches of bottom and thence up to pipe outlet.

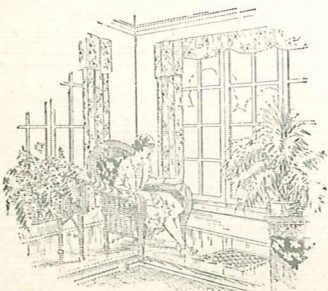


Sectional View

#### DETAIL

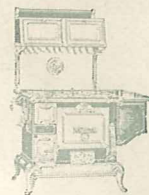
No.	Finish	Height	Length	Depth	Baffle Plates	B. T. U. Per Hr.	Number of Burners	Number of Air Tubes	Dia. of Air Tubes	Length of Air Tubes	Weight
6-3	Walnut Pore. Enamel	42½ inches	24½ inches	19 inches	Three	40000	Two	Six	3 inches	18 inches	231 lbs.

NATIONAL FURNACE PLANS ARE  
STANDARD CODE





# NATIONAL STOVES, RANGES AND FURNACES



## National Gas Heater

### No. 6-3

#### Warm Air Circulator With Concealed Manifold

#### Description

The maximum and minimum gas consumption in cubic feet per hour does not mean anything. This is governed by the size orifice used and gas pressure. The important feature on a gas circulator is how many B. T. U.'s will the heater deliver from the smallest amount of gas used as fuel. The NATIONAL gas circulator will meet this requirement and is a most powerful economical heat producer.

**Combustion Chamber**—Is equipped with six three inch extra heavy Cop-R-Loy tubes 18 inches long extending vertically through combustion chamber and connected at top and bottom with gas tight cast iron plates. Extra heavy Cop-R-Loy side walls form the body of the combustion chamber. The Cop-R-Loy Baffle plates are so attached to inside walls of combustion chamber to force the heat against all parts of the vertical tubes through which purified air passes into the room.

**Air Circulation**—The cold air is drawn from the floor passing over and against the cast iron burner box, then through the large Cop-R-Loy tubes, around which the heat is passed back and forth by a series of baffle plates. All gas fumes pass into the combustion chamber and circulate over and around the tubes and enter the down flues on the right and left side of combustion chamber, at the extreme top back, thence travel downward within 8 inches of the bottom of heater and return upward through center back flue to the 4 inch pipe outlet. This not only triples the circulation and efficiency of the heater, but also holds the flue losses down to a minimum. This construction is an improvement over other makes.

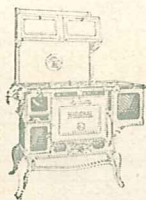
**Burners**—Two large properly constructed one piece cast burners, cored and drilled, can be operated separately. Manifold is concealed and more sanitary than the exposed style. Gas cocks are equipped with special needle point adjuster permitting the operator to adjust burners to all gas pressures.

**Casing**—Is made in four sections of extra heavy WHEELING vitreous enameling steel, beautifully grained in NATIONAL walnut, will harmonize with all room furnishings. Designed with oval corners, which permit a free unobstructed flow of air and are most sanitary and easily kept clean.

STANDARD CODE MAKES NATIONAL  
FURNACE INSTALLATION INFALLIBLE



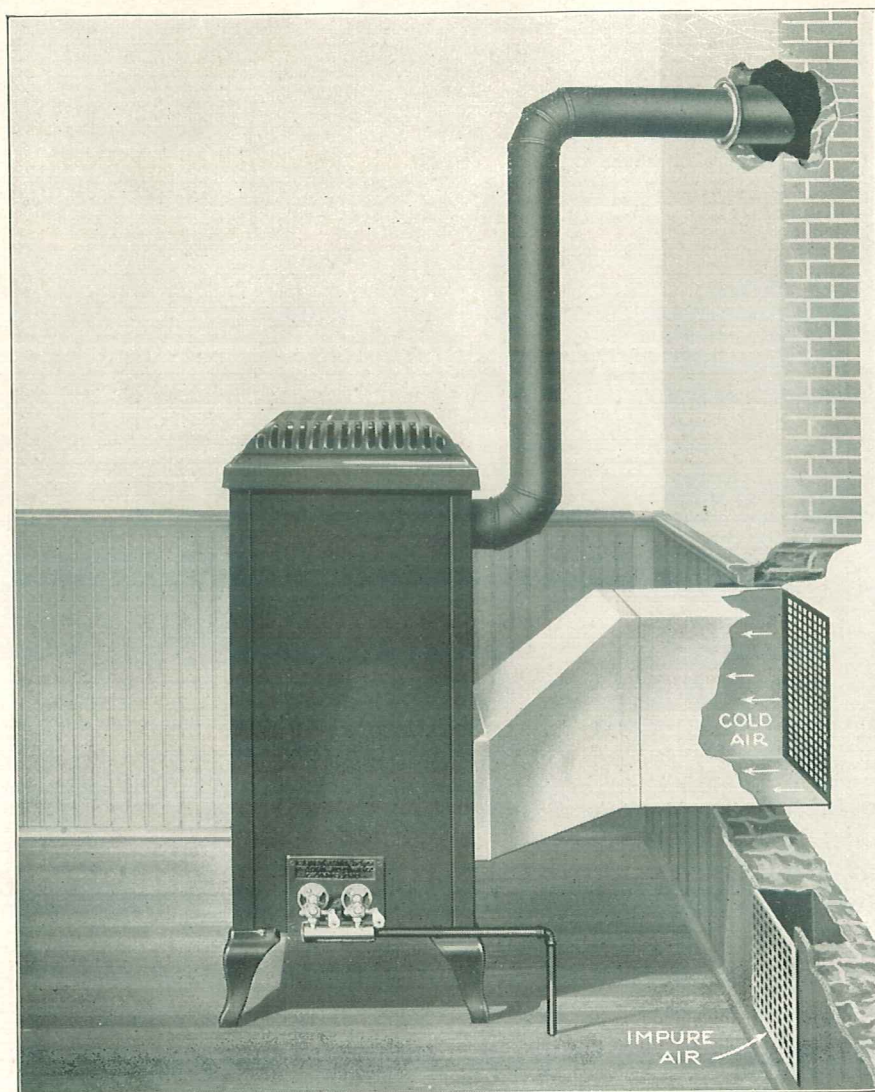




# EXCELSIOR STOVE & MANUFACTURING COMPANY

## School Room Gas Heater No. 400

Installed in Accordance with Heating and Ventilating Requirements as Recommended in Bulletin 148,  
Department of Education, State of Texas



### SPECIFICATIONS

No.		Width	Depth	Height	Flue Collar	Weight Crated
<b>400.</b>	Semi-Gloss Black Baked Japan Finish.....	28 inches	17 inches	42 inches	4 inches	235 lbs.
<b>400W.</b>	Grained Walnut Porcelain Enamel Finish....	28 inches	17 inches	42 inches	4 inches	240 lbs.

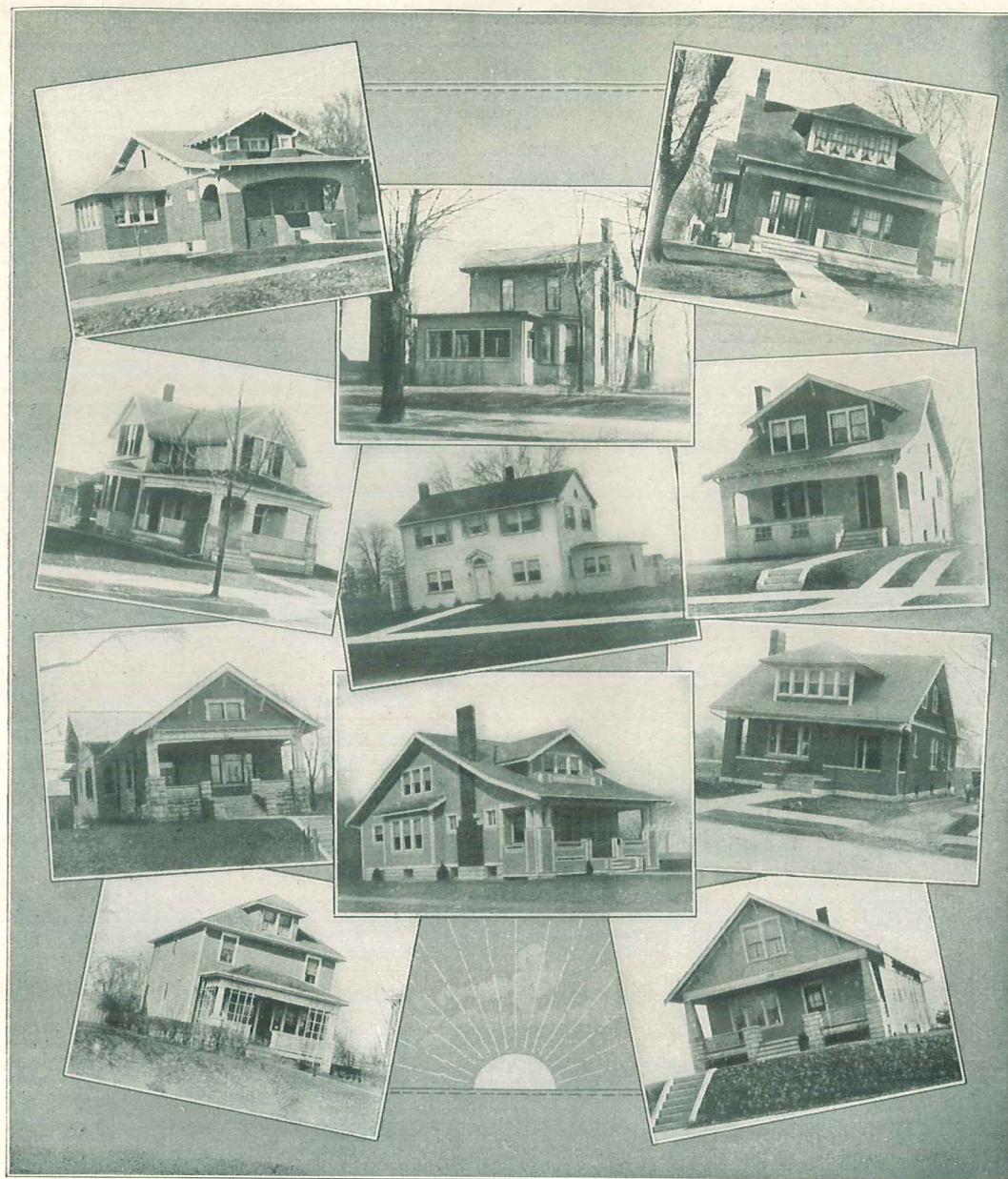
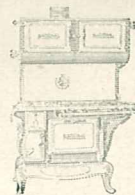
### DESCRIPTION

This heater was designed to meet the demand for a gas heater with the capacity to heat large spaces on the principle of quadruple heat extraction with double circulation. Rigidly made of cast-iron and 20-gauge steel to withstand hard usage. The air is drawn from the floor over the cast-iron dome and fireback, then through the nine inner tubes, around which the heat is passed back and forth by a series of baffles. In this way every available heat unit is extracted and the air of the room at no time comes in contact with the burning gases. Additional circulation is also provided between the heater and the outer casing insuring an even temperature in all parts of the room.

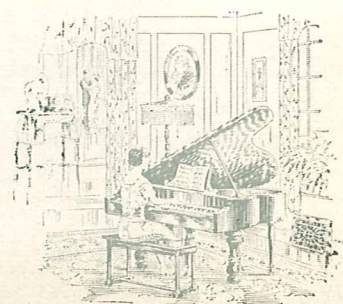
For school rooms, an 8x20 collar for attaching fresh-air duct is provided. This collar is equipped with a damper operated by a quadrant which holds it rigidly in place. A water pan is provided which can be hung inside the casing in the most convenient position.



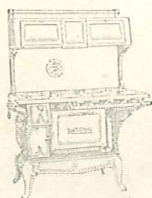
# NATIONAL STOVES, RANGES AND FURNACES



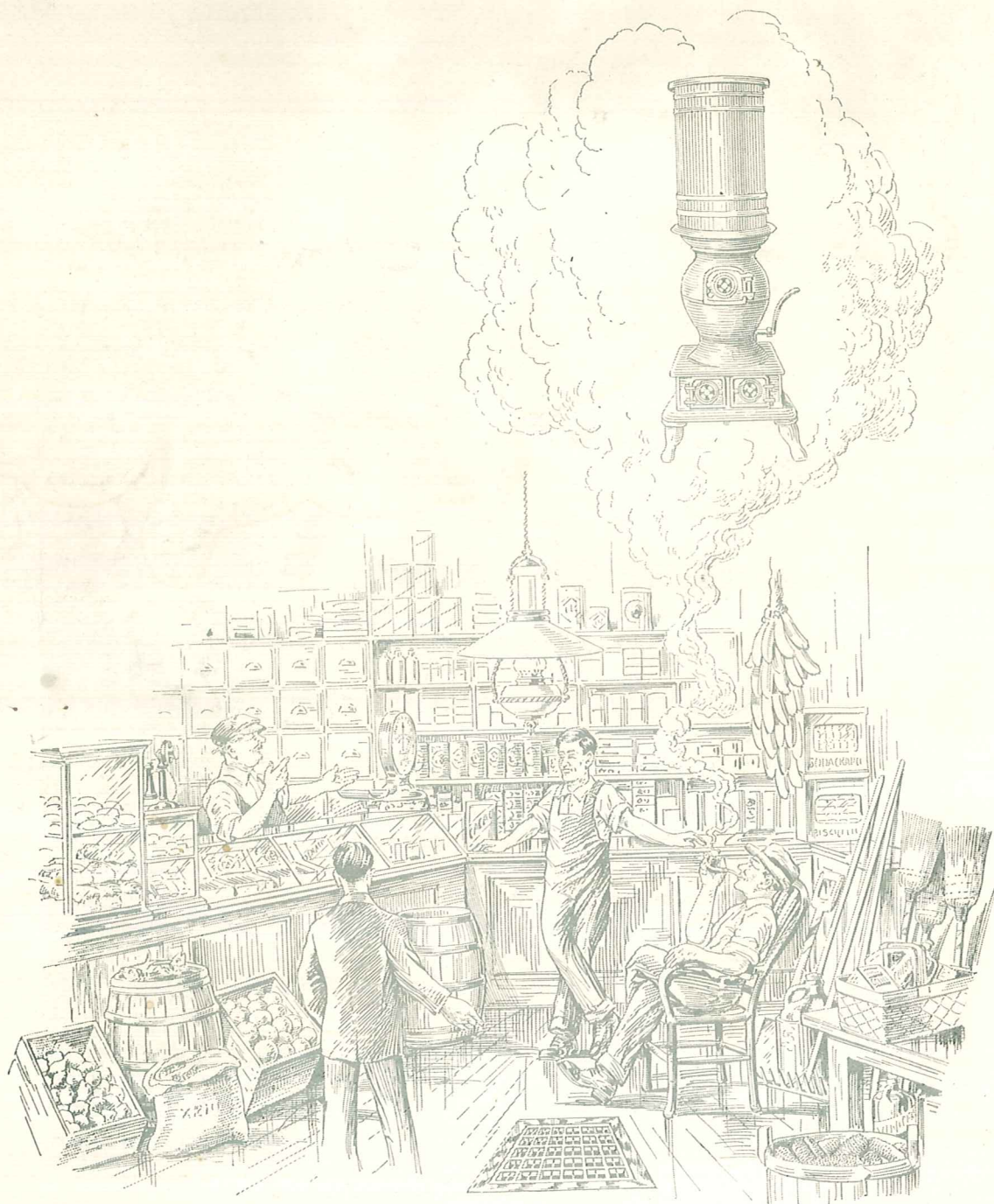
A Few of the Homes Heated with National Furnaces







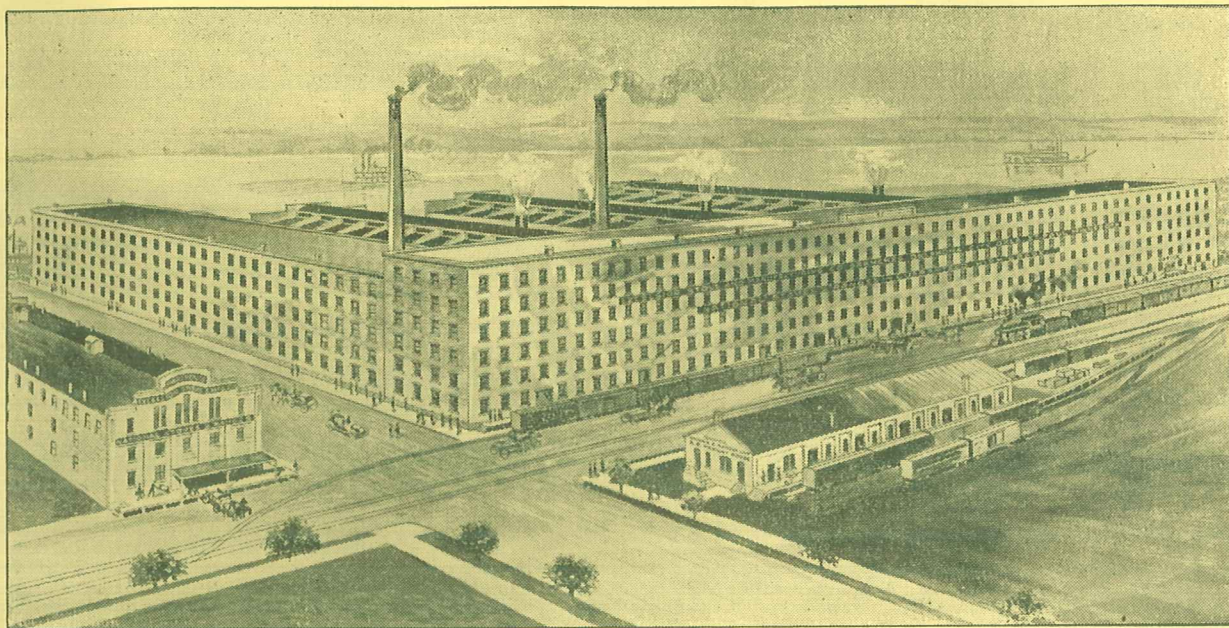
# EXCELSIOR STOVE & MANUFACTURING COMPANY



NATIONAL FURNACES MAKE HOMES  
COMFORTABLE



The Home Where  
NATIONAL STOVES, RANGES AND FURNACES ARE MADE  
QUINCY, ILLINOIS, U. S. A.



THE  
LARGEST STOVE AND FURNACE PLANT  
IN THE WEST

In addition to National Furnaces, we make a complete line  
of NATIONAL STOVES and RANGES in many styles and sizes.

---

The Famous Porcupine Fireback used only in NATIONAL  
Cooking Stoves and Ranges is guaranteed for Twenty-five (25)  
Years.



# NATIONALS ARE

HEALTHFUL,  
CLEAN,  
RELIABLE,

ECONOMICAL,  
LABOR SAVING,  
CARE-FREE,

HEATING AND  
VENTILATING  
DEVICES.

*and*

**COST LESS THAN YOU EXPECT TO PAY.**



MADE BY  
**EXCELSIOR STOVE & MFG. CO., QUINCY, ILL.**  
MAKERS OF  
**NATIONAL STOVES RANGES AND FURNACES**  
BRANCHES

OKLAHOMA CITY, OKLA.

PARIS, TEX.

ST. PAUL, MINN.

